Florida WILDLIFE

Bluegills are Bream
Talk with the Animals

Fishing · Hunting
· Conservation ·
Outdoor Recreation

MAY 1973

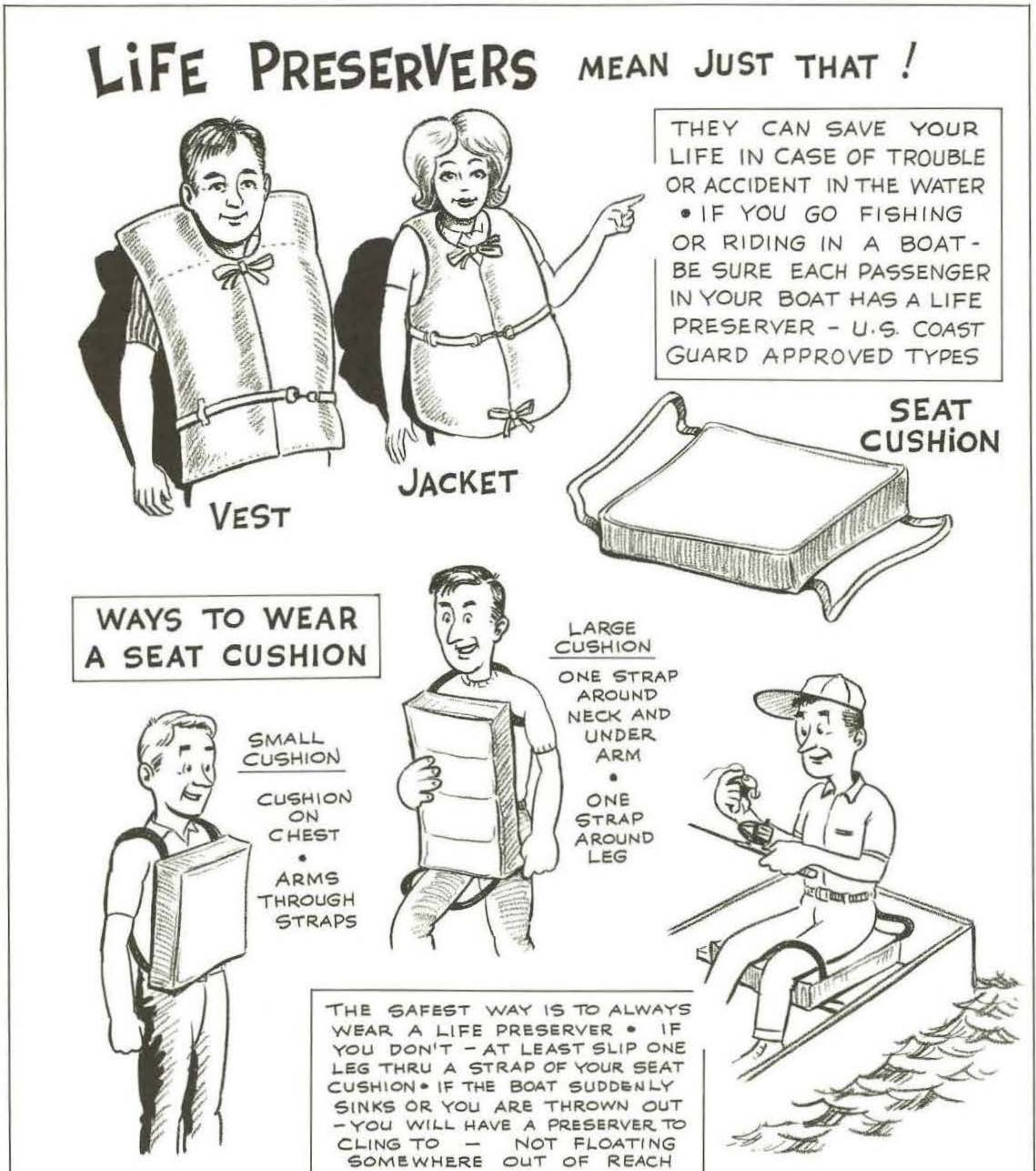
The Florida Magazine for all Sportsmen

35 CENTS

RECEIVED
JUN 7 1973
[illegible]
DEPT. NATURAL RESOURCES
ST. PETERSBURG, FLA.

LIBRARY
MARINE RESEARCH LABORATORY
FLORIDA DEPT. NATURAL RESOURCES

Florida Wildlife Scrapbook


LIFE PRESERVERS MEAN JUST THAT !
THEY CAN SAVE YOUR LIFE IN CASE OF TROUBLE OR ACCIDENT IN THE WATER • IF YOU GO FISHING OR RIDING IN A BOAT - BE SURE EACH PASSENGER IN YOUR BOAT HAS A LIFE PRESERVER - U.S. COAST GUARD APPROVED TYPES
VEST
JACKET
SEAT CUSHION
WAYS TO WEAR A SEAT CUSHION
SMALL CUSHION
CUSHION ON CHEST • ARMS THROUGH STRAPS
LARGE CUSHION
ONE STRAP AROUND NECK AND UNDER ARM • ONE STRAP AROUND LEG
THE SAFEST WAY IS TO ALWAYS WEAR A LIFE PRESERVER • IF YOU DON'T - AT LEAST SLIP ONE LEG THRU A STRAP OF YOUR SEAT CUSHION • IF THE BOAT SUDDENLY SINKS OR YOU ARE THROWN OUT - YOU WILL HAVE A PRESERVER TO CLING TO - NOT FLOATING SOMEWHERE OUT OF REACH
FLORIDA WILDLIFE MAGAZINE • FLORIDA GAME AND FRESH WATER FISH COMMISSION

Florida WILDLIFE

VOL. 26, NO. 12

MAY 1973

official publication of the
Game & Fresh Water Fish Commission
State of Florida

★

Publications Department

BILL HANSEN *Editor*

WALLACE HUGHES *Art Director*

GENE SMITH *Associate Editor*

C. L. SATTERFIELD *Circulation*

In This Issue

Hickory Mound Impoundment .... R. Lazor & J. McDaniel 4

Albinism in Nature .... Gene Smith 10

Talking with Animals .... Charles Dickey 12

Key Biscayne .... John Fix 18

Bluegills are Bream .... Charles Waterman 20

Departments

Fishing 7

Nature Notes 17

Hunting 25

Science Hobby 28

The Cover

Lightweight and fast flying, the Cooper's Hawk, or "blue darter," prefers woodland habitat, and feeds on small birds and animals. The adult is shown at top; immature below. See page 17.

From A Painting By Wallace Hughes

FLORIDA WILDLIFE is published monthly by the Florida Game and Fresh Water Fish Commission, Farris Bryant Bldg., 620 S. Meridian Street, Tallahassee, Fla. 32304. Single copy price, 35¢; Subscription rates: 1-year, $3.00; 2-year, $5.50; 3-year, $7.50. Change of address should be reported promptly. The Commission assumes no responsibility for unsolicited manuscripts and illustrative materials. Permission is granted to reprint text materials, EXCEPT for advertising and commercial purposes, provided full credit is given FLORIDA WILDLIFE, and contributors. Clearance must be made with photographers and artists to reproduce illustrations. Second Class Postage paid at Tallahassee, Florida.

Copyright 1973 by
Florida Game and Fresh Water Fish Commission
Tallahassee, Florida 32304

ROSE TALLAHASSEE

COMMISSION

HOWARD ODOM, Chairman
Marianna

JAMES B. WINDHAM
Jacksonville

O. L. PEACOCK, JR.
Fort Pierce

E. P. BURNETT
Tampa

O. M. PHIPPS
Miami

★

ADMINISTRATION

DR. O. E. FRYE, JR., Director

H. E. WALLACE
Assistant Director

ROBERT BRANTLY
Executive Officer

JOEL McKINNON
Administrative Assistant

JOHN W. WOODS, Chief
Fish Management Division

JAMES A. POWELL, Chief
Game Management Division

BRANTLEY GOODSON, Chief
Law Enforcement Division

JAMES T. FLOYD, Chief
Information-Education Division

★

REGIONAL OFFICES

Northwest Region
T. L. GARRISON, Manager
P. O. Box 576
Panama City, Florida 32401
(904) 785-5352

Northeast Region
LARRY MARTIN, Manager
Route 7, Box 102
Lake City, Florida 32055
(904) 752-0353

Central Region
J. W. BICKERSTAFF, Manager
1239 S. W. 10th Street
Ocala, Florida 32670
(904) 629-8162

Southern Region
J. O. BROWN, Manager
2202 Lakeland Hills Blvd.
Lakeland, Florida 33801
(813) 686-8157

Everglades Region
LOUIS F. GAINEY, Manager
551 North Military Trail
West Palm Beach, Florida 33406
(305) 683-0748

Photos By Wallace Hughes

little-known recreation area

Hickory Mound Impoundment

by

ROBERT L. LAZOR, Botanist
Department of Natural Resources

and

JIMMIE McDANIEL, Biologist
Game & Fresh Water Fish Commission

THE HICKORY MOUND IMPOUNDMENT has provided a multitude of recreational opportunities to residents of the panhandle area of Florida, and also much useful scientific information concerning fish and game management. It is a prime study area for state biologists. The area, covering approximately 700 acres, is located in the Aucilla Wildlife Management Area (Taylor County portion). It lies southwest of Perry, just a few miles east of the mouth of the Econfina River on the Gulf of Mexico.

Since its creation five years ago, the area has become a popular spot with sportsmen, who have enjoyed good fishing, hunting, trapping, camping, and crabbing there.

"The impoundment," as it is commonly referred to locally, was originally a broad, brackish water marsh covered with needle rush, *Juncus,* interrupted by islands of slash pine, *Pinus elliotii,* and live oak, *Quercus virginiana.* It is bordered with nearly pure stands of cabbage palm, *Sabal palmetto,* from the mixed hardwood-pine forests inland.

Initially diked in 1966, the impoundment was completed in 1968 and subsequently flooded in an attempt to control the rushes. During 1968 and 1969, much of the needle rush was controlled, and many other important aquatic plants proliferated within the confines of the impoundment. Included were *Chara*, a large alga which waterfowl readily eat; widgeon grass, *Ruppia maritima*, another important waterfowl food; and water hyssop, *Bacopa* sp.

Biologists have noted for many years the appeal that newly impounded waters hold for large numbers of migrating waterfowl, owing in part to the variety and abundance of tasty aquatic plants found there. By naturally or artificially fluctuating the water level within a reservoir or natural body of water, one can, theoretically, manage the aquatic plants, the fish, and the waterfowl.

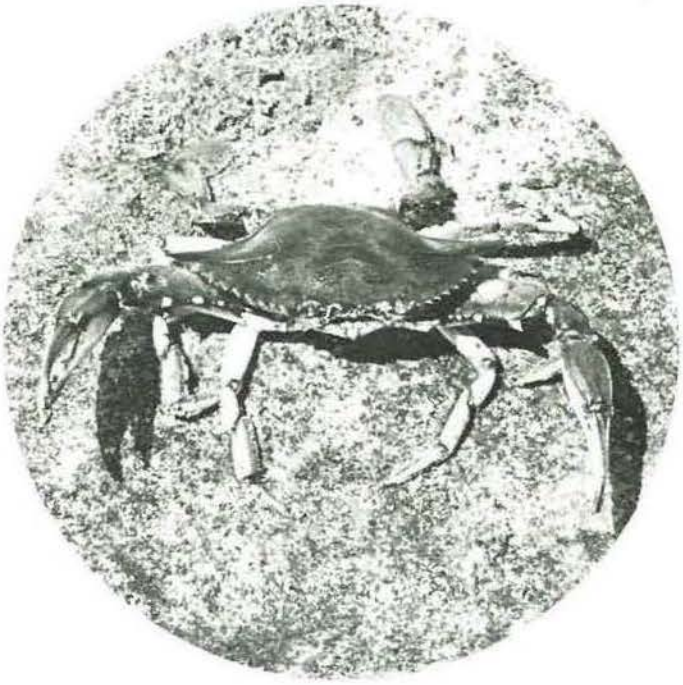
Management biologists have also reported for years that impounded waters gradually lose their productivity in fishing and waterfowl use after the first few years, as the waters become stagnant or enriched because of stabilization and go through natural aging processes at an accelerated rate.

With these ideas in mind, the Hickory Mound Impoundment was set up on a water fluctuation management program designed to renew the life of the reservoir periodically.

Drained in the spring of 1969, the area was exposed to the atmosphere and allowed to dry during June and July. The exposed marsh was burned in late July, leaving a 3-inch stubble, and then reflooded, in August, prior to the duck hunting season, which opened in November.

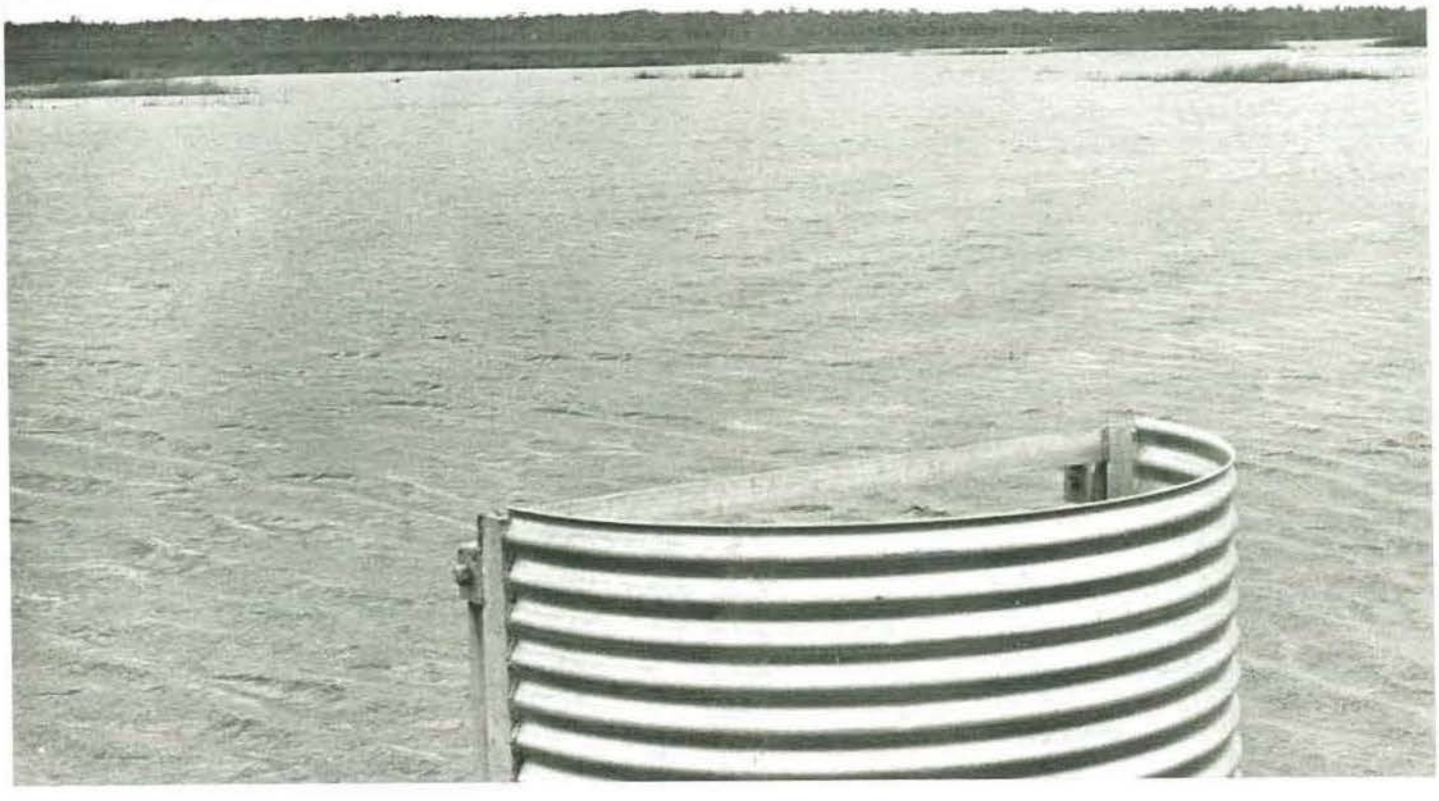
While there was only limited waterfowl use during the '69 season, a large number of blue crabs flourished within the reservoir. Game biologists charged with the management responsibilities

(Continued on next page)



Flood a marsh, drain it, dry it, and reflood it, and the abundant plants that grow attract many species of waterfowl, like scaup in flight, and baldpate, far left. Real bonus at Hickory Mound Impoundment is blue crab fishery which augments good hunting and sports fishing for reds, speckled trout, shellcrackers, and black bass. Pipe and riser, below, and a portion of dike, were blown out as a result of hurricane in 1972, but repairs have been made.

Photos By Jimmie McDaniel



The impoundment covers approximately 700 acres. It was completed in 1969 as a cooperative state-federal wildlife management project in cooperation with Buckeye Cellulose Corporation who owns the land.

Photo By Jimmie McDaniel

(*Continued from preceding page*)

of the area were quick to realize a new recreational aspect to the brackish water impoundment—a blue crab fishery—and the crabs were large and delicious to eat.

The marsh remained flooded until February 1970, when it was totally drawn down and allowed to fluctuate naturally with the seasonal tidal inflow until July 1970. Refilled in August, the impoundment soon flourished with a variety of aquatic plants important to waterfowl, most notably *Chara* and widgeon grass.

During 1970, the waterfowl populations reached a peak seasonal use of 3,400-4,000 scaup, 2,000 mallards, 500-600 widgeon, or baldpate, 300-400 shovelers, 300-400 gadwalls, 100-200 black ducks, 100 blue-winged and green-winged teal, and smaller numbers of redheads. Some geese also visited the area. The 1970 waterfowl season was one of the best years for area waterfowlers. Many hunters checked out full bag limits daily at the impoundment.

After the '70 waterfowl season, some problems with algae arose, and the impoundment was drained and fluctuated prior to the 1971 season, which produced populations in excess of 1,000 mallards, 2,000-3,000 coots, 200 gadwalls, 200-300 widgeon, and many other species of both diving and puddle ducks.

Waterfowl hunting was again good during the season, but soon afterward, as water temperatures warmed within the impoundment, a severe problem with filamentous algae became evident. The area was again drained, which brought the problem under control.

The impoundment dike system sustained extensive hurricane damage in 1972, but was repaired over a period of several months prior to the fall duck hunting season. Hunting pressure was light to moderate, with waterfowl use at a low level, partly because of the short-stopping of waterfowl in northern regions.

Fresh water and salt water fishing, both in and around the impoundment area, have been generally good. Spotted weakfish (speckled trout) and redfish are taken in the tidal sloughs which border the earthen dike, and largemouth bass and redear sunfish (shellcracker) can be found in good numbers within the impoundment.

The Aucilla Wildlife Management Area is a cooperative Pittman-Robertson Federal Aid management project involving the Florida Game and Fresh Water Fish Commission, Buckeye Cellulose Corporation, and many cooperating landowners. The Hickory Mound Impoundment area is owned by Buckeye, whose officials have contributed extensively to the overall success of the impoundment program. Continued cooperation between the landowners and the governmental management agencies will assure this and other land and water management programs throughout Florida.

Today, state wildlife and fisheries management biologists have gained, and are still gaining, much useful scientific information regarding the use of water level fluctuation to maximize the recreational values of the state's extremely valuable waters. ●

Fish Releasing

some fish survive at a good rate after removal from a lure, but others might just as well be kept, especially when badly damaged

By **CHARLES WATERMAN**

A LOT OF THE FISH I have released in the past 50 years never lived long enough to be appreciative. The subject of releasing fish caught on hook and line becomes more timely since there has been a recent series of reports on survival rates under various conditions.

Not all reasons for releasing fish are commendable. The guy who keeps pulling them off a stringer and chunking them back to make room for bigger ones in filling his limit is probably killing most of those he returns to the water. Some laws, such as the snook regulation that a fish must be 18 inches long to be kept, encourages the return of fish, no matter how badly they may be damaged. There are times and places when it's possible to catch 100 small snook before getting a "keeper." Since snook are easily damaged by hooks, there's considerable loss.

Bass fishing tournament participants are more conscious than ever before about fish release and survival. These anglers at Welaka treat their catches in an antiseptic solution, before freeing them to hopefully fight again.

For many years we have been making great effort at returning sailfish, and charter boats piously fly release flags showing their score. I've always been strong for that and suspect, even if the fish dies, the release spirit is a good thing. You can say that no fish is wasted if it's returned to the water, alive or dead, as it gets back into the food chain.

There isn't any universal agreement on the subject, but it now appears the sailfish grows very rapidly and lives only a short time, probably no more than three years. They say most of the larger fish caught wouldn't live long enough to spawn again, even if released, and that we should concentrate on releasing the smaller ones.

The rate of survival with released sailfish is impossible to reckon, of course, but some authorities say the fish has very little chance if it's thoroughly played out. It's nearly paralyzed, they say, and if it doesn't die because of poor respiration, it will be an easy mark for sharks.

There used to be quite an argument about sailfish that disgorge their stomachs when hooked. Some fishermen said the act was a normal one and that the fish would take back its stomach and prosper if you turned it loose. Others said a sailfish which disgorged its stomach was a goner. If the percentage of "healthy" releasees that recover is as small as most authorities seem to believe, the other problems, including the stomach question, are largely academic.

Releasing black bass in Florida waters may have little bearing on the overall total of resident fish, but I believe it can save quite a few of the really big ones. However, hardly anyone releases bass over three or four pounds.

A fish that has been played to complete exhaustion with very light tackle has a couple of strikes against him. A mouth-hooked fish has a much better chance of survival than one which swallows a shiner or plastic worm. Admittedly, digestive juices can destroy many hooks, and it's not unusual to catch an apparently healthy bass with a swal-

(*Continued on next page*)

(*Continued from preceding page*)

lowed bait he's been carrying for some time, but the fish's innards can be torn up beyond repair while it's being landed.

Some new thoughts on returning fish have come up in connection with the bass-catching tournaments conducted by the Bass Anglers Sportsman Society. Bass contests are somewhat controversial, and there's been a great deal of study concerning the relatively new system of returning fish to the water after they are weighed and scored. I won't go into detail on the percentages of recovery, especially since they vary greatly. There have been both good and bad reports. The consensus is that swallowed hooks greatly reduce recovery chances, and that excessive handling and consequent abrasion will make fungus attacks deadly.

Here's how the contestants have been doing it:

It is mandatory for the fishermen to use livewells in their boats. Upon reaching the dock they put their catch into plastic bags, with water, and before the fish are weighed they are thoroughly dunked in water containing acriflavine, an antiseptic that coats the fish and holds down fungus danger. The fish is kept in the chemically treated water until release, except for very brief periods.

I'd say that, regardless of any past record, the contest people are doing all they can, and the studies attendant upon the contests are very valuable where fish releases are concerned.

Some of us don't feel that fishing should be a competitive sport, but whether you like bright jumpsuits and boats labeled with lure names or not, I doubt if you can come up with any legitimate case against the contests. The old argument that the contestants took too many fish is partly refuted by the present system of releasing, and if you aren't satisfied that the percentage of survival is good enough, remember that those guys would probably be fishing somewhere anyway, and catching fish whether there was a contest or not.

Fishery biologists will tell you that in most Florida waters there's more danger of panfish overpopulation than scarcity. Where they get too thick and tend toward stunting, it would probably be better to throw them on the bank rather than release them. But that goes against the grain with most of us, so we sneak them back into the overcrowded water.

The saddest situation of all is that of the fish that literally fights himself to death. That certainly happens with bonito on light tackle. Whether they might survive if yanked aboard quickly and chunked back, I don't know, but I doubt it. There are innumerable salt water species that seem to die too quickly for satisfactory release.

You have to keep an open mind on the subject. An example of highly satisfactory release procedure involves fresh water trout caught with flies and hooked in the mouth. If handled with reasonable care, they seem to recover quickly and fully in a majority of cases, and are often ready to strike again a day or so later.

HOOK AND LINE fishing for mullet doesn't rank as one of the world's most popular sports, and the popular notion that the jumpy rascals are primarily algae eaters doesn't encourage me to go storming off after them.

We do know that tiny bits of angleworms on appropriately tiny hooks can sometimes score regularly. Mullet do take artificial flies, and the most successful practitioner of that art I know is Dave Chermanski, who fishes on the Florida East Coast much of the time, and has landed as many as four mullet on the same day. He catches them when they're skimming the surface with their mouths, and says he suspects they may inhale his little flies by accident.

My wife Debie caught a good-size one a while back on a little green nymph she was fishing for bluegills. I believe it was a Number 10, which I considered pretty big for a mullet.

I've seen mullet caught with plugs, but it was obvious they had been snagged in most cases. Whether they actually approached the plug out of curiosity and got too close, I wouldn't know.

Anyway, Joe Lucas of Cocoa Beach came up with an unusual one the other day when he caught a 14-inch mullet on a Crocodile spoon—in the mouth. What's more, Joe says he saw the fish come for it. Maybe, he adds, it was mental telepa-

Do mullet take artificials? It happens frequently to a few fishermen, although most mullet catches, like Milt Culp's at left, are foul-hooked. Good fly rod action is shown in above photo—stick has normal, efficient bend.

thy—the mullet tuning in on his thoughts. It seems Lucas had been plotting some deliberate fly fishing for mullet when the spoon incident happened.

WHEN THE B.A.S.S. invitational fishing contest was held at Welaka in February, the hottest spot reached by the speedy bass boats was the Rodman Pool, leftover 8,000-acre impoundment that was originally a part of the cross state barge canal. Officials of the tournament stated that it just might be the hottest bass fishing in the United States this year. The experts caught 4,247 pounds of bass, many from the pool, and a fish of 12 pounds 13 ounces, caught by J.F. Skinner of Birmingham, Ala., was the biggest.

LAKE OKEECHOBEE is some of the most productive bass water in Florida, and it's a favorite spot of mine. Although I've never felt it was a potential for a world's record as some believe, there are plenty of big bass there. The annual Chalo Nitka fishing contest down there brings forth some 10-pounders and quite a few more than nine. A 7-pounder isn't unusual at all—so although that area may not have as many monsters as some of the waters a little farther north, those aren't *little* bass. And there are a lot of them. Okeechobee and its surrounding canals are hard to beat.

SINCE ARGUMENTS about rod action often involve intangible things nobody understands, I stay away from them and confess to gleeful snickers when alleged experts lay down flat requirements for rods, especially fly rods. Action has special importance in fly rods, of course. There were the flippy-tipped rods that were in vogue for a while, and there are the "slow, powerful" rods touted by numerous experts. Both can be carried to extreme. Describing a rod's action is difficult, and I don't even know if some of those I like would be considered fast or slow by learned rod checkers.

"Designing" a rod can mean anything from wiggling it and saying it's okay and to go ahead and build it, to actually delving into the mathematics of its design, developing the resin and fiber, and testing it for a few months.

Sometimes there's not much rapport between the caster who knows what he likes and the actual builders who hire him to "design" for them. The people who build a rod might be like the Oriental workmen who copied a locomotive, even to a patch on the boiler.

Right at the moment I really don't know of any rods that won't work, but a few years ago there were some real smellers, both in bamboo and glass. I once saw a beautifully wrapped Japanese rod that had been meticulously put together by someone who hadn't the slightest idea of what it was for—and when you tried to cast with it, *you* also wondered what it was for.

There has been a lot of exasperation between the caster and the builder. My best story on that concerns a fine fisherman who had definite ideas about what a fly rod should be, and was engaged by a manufacturer to "design" a glass rod. Now the fisherman didn't know anything about manufacture; he just knew what a rod ought to feel like. So he checked a batch of different rods whomped up by the builder, made suggestions, tested sticks with his recommendations built in, and finally announced they had what he liked.

Okay, said the manufacturers, they'd put it into production.

When the "designer" got hold of a "production" rod, he found it was a real dog, so he went screaming to the manufacturers to find what they had done to his design. They yelled back at him and said they were building the rod he had recommended, and everybody was pretty sore. It finally developed into a confrontation between the designer and the superintendent of the actual building process. The super was already mad.

The rod, he snarled, was exactly what the fisherman had approved of, so the fisherman snarled back and said bitter things about rod builders.

In repeating that it was exactly what had been ordered, the superintendent said it was the same damned thing except for a little manufacturing detail that was none of the designer's business. The detail was a change in the thickness of the glass walls—one of the main differences between a fly rod and a pushpole.

The designer said he couldn't talk much after that, so he went back to fishing and swore off making rod recommendations. ●

albinism in nature

HARDLY A MONTH goes by that a newspaper or magazine in some part of the state doesn't carry an item, usually with a picture, of an all-white bird or mammal that has turned up to enliven conversations within its coverage area.

Through subscription to a statewide news clipping service, the Game and Fresh Water Fish Commission is able to keep fairly well abreast of the variety and frequency of occurrence of albinism in wildlife. (Not that all albinos in the wild are detected, much less captured or photographed and reported in the press; but it seems safe to say that the reports coming in do represent a good sample of this fairly common happening in nature.)

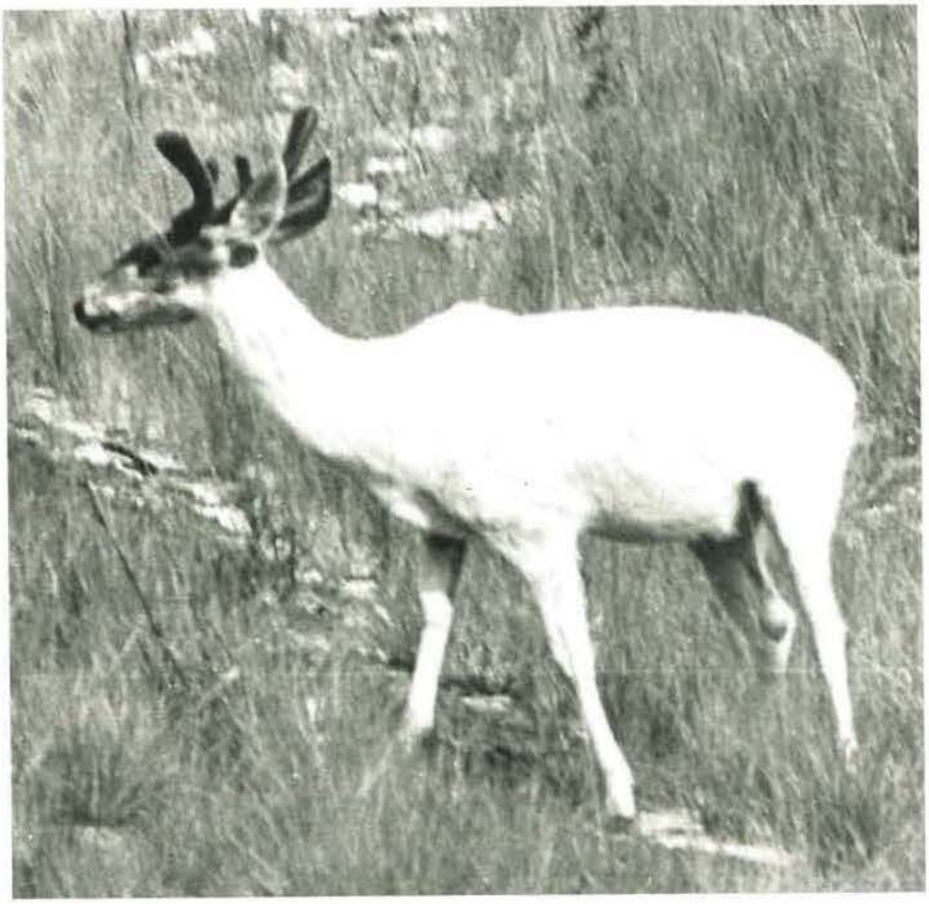
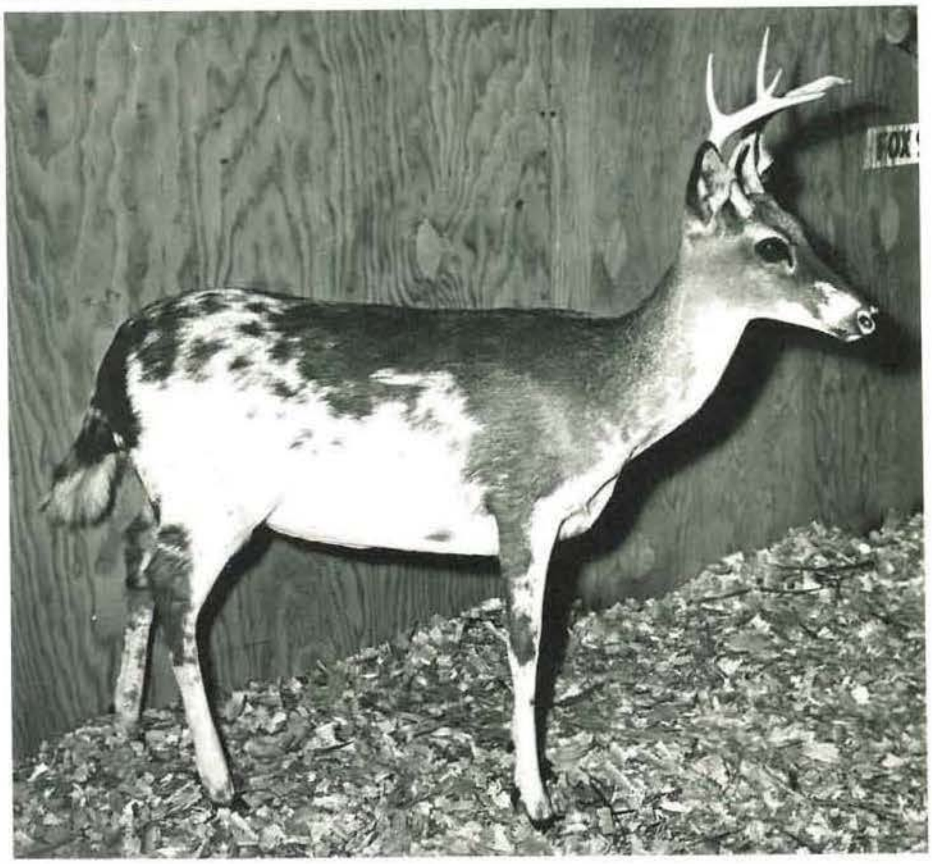


Photo By Morrie Naggiar

By GENE SMITH

Photo By Gene Smith



Among the species most often recorded are small mammals—gray squirrels, raccoons and opossums. During the fall and winter months, deer are occasionally reported by surprised hunters who have glimpsed an albino or part-albino animal in the woods. A few such specimens are taken in the legal harvest each year.

In the bird kingdom, a white robin on the lawn always turns a few heads—and camera lenses—among birding enthusiasts; and a white crow, of all things, is not unheard of.

Albinism is defined as the absence of normal pigmentation in a person, animal or plant. (We confess, however, we've yet to read or hear about an all-white tree or wildflower.)

True albinos have abnormally light-colored *everything*. An animal's fur is white, and its toenails are too, if it has any. Its eyes are pink, and so is its skin. In humans, the skin is pale and very light-sensitive; the hair is light-colored, if not pure white; and the eyes are pink.

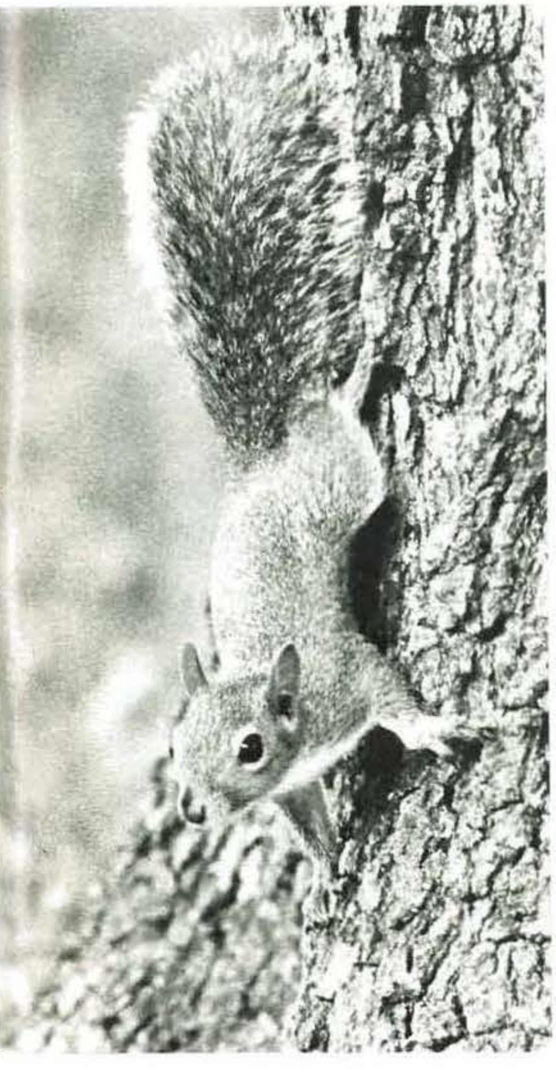
Photo By Leonard Lee Rue III

Some of the strangest looking color abnormalities among wildlife species are seen in part-albinos, such as the white-tailed deer shown. These piebald, or pied, animals are more numerous, it appears, than pure albinos, and they almost always have normally colored eyes.

In earlier times in rural Florida, much superstition surrounded snow white animals in the forests, and they probably did appear rather ghostly on a moonlight night. But various people thought of such happenings differently. Some considered these unusual animals good omens, but most held the opposite view. The fact is, the only bad luck associated with albino wildlife is apt to befall only the specimen itself, for without the protection afforded by normal coloration, the chances of an animal's surviving to maturity are considerably reduced.

Look at it this way: How would you like to be the only white squirrel in a patch of woods shared by a family of bobcats, a pair of barred owls, and a hungry Cooper's hawk? ●

Photo By Wallace Hughes



An albino gray squirrel, below, is easier seen in the woods than normally pigmented brother, at left. Whole colonies of white squirrels live in many states, as well as Florida. All-white and piebald deer, far left, aren't as common as small game, but even so they're not extremely rare. Hunters take a few; most of them never attain maturity due to lack of protective color.

Photo By Karl Maslowski

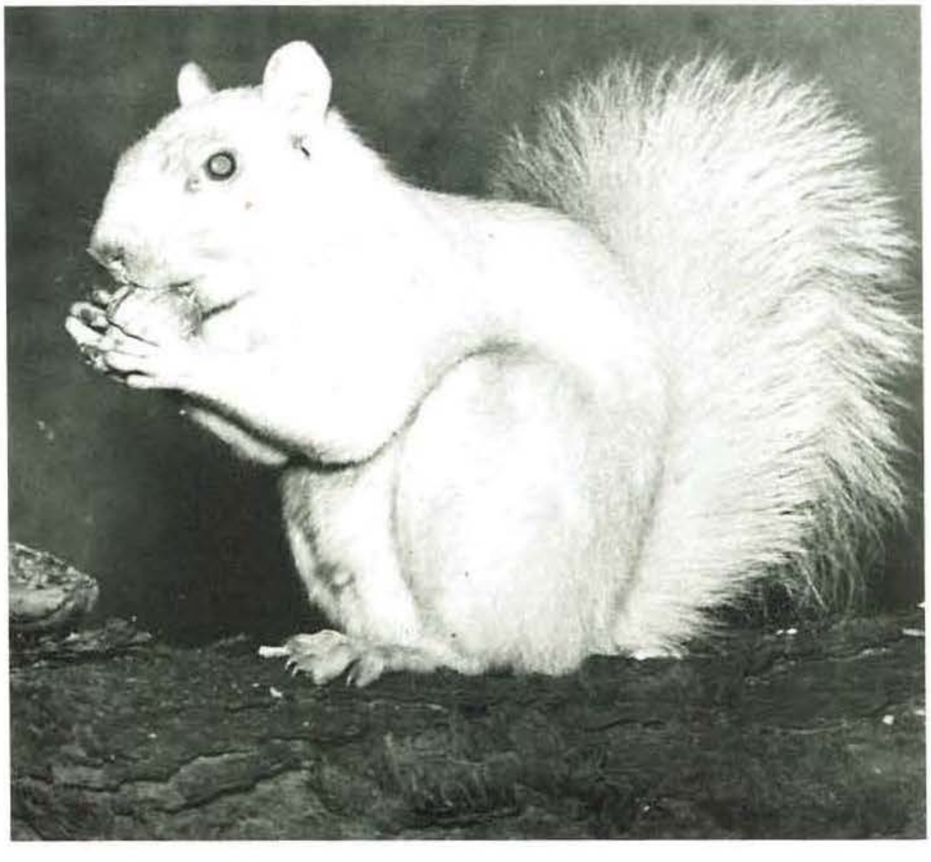


Photo By Lovett Williams

learning the language is half the fun in . . .

Talking with Animals

By CHARLES DICKEY

CALLING BIRDS AND MAMMALS is an easy way to have year-round entertainment, and learn a lot about wildlife. It's an inexpensive hobby which can give you hours of pleasure, even in your own back yard.

Since the dawn of man, hunters have used sound as a way of locating or attracting animals. Beating antlers together may attract deer during the mating season. Imitating a romantic turkey hen pulls a gobbler. Softly chuckling on a duck call may remove the restraints of a circling flock of mallards reluctant to pitch into the decoys.

Primitive hunters made crude calls of reeds, grass blades and wood. Quite often they used no artificial aids, depending instead on their own voices. They surely were excellent game callers, as they lived close to nature, and their survival often depended on killing game.

Today's hunter mostly lives in cities and towns and spends a small part of his time outdoors. However, he has many aids to help him learn wildlife calling. There is a wide variety of inexpensive calls, made of wood, metal, or plastic, which are designed to imitate wildlife. Further, sound tapes and records are available so that a beginner can sit comfortably in his den and listen to calls repeatedly until he has mastered them. He gets a good start before going into the woods to learn the fine points.

Libraries have a wealth of articles and books related to game calling. Biologists have written extensively on behavioral patterns of many species of wildlife. The amateur, with a little study, can go into the field well versed in the habits of wildlife and seasonal responses.

Of course, no amount of home study will make him an expert caller. He can only reach that status by long hours of patient practice with a species in its native habitat. Some of these hours can be saved if he finds an old-timer who'll go into the field and work with him.

Most dedicated hunters do their practice calling during the closed hunting season. As long as you do not carry a gun or molest wildlife, it is not against the law to call any species. There is tremendous personal satisfaction if you talk a turkey to within 40 yards of yourself before the season opens. While you cannot shoot it, and there will be no turkey dinner, you'll be pleased that you outwitted a crafty bird and pulled him into lethal range.

One of the easiest birds in Florida to practice calling with is the bobwhite quail. In spring and summer, during the mating and nesting season, the male establishes a territory and, in turn, attracts a female. Whether the female is attracted to that particular male or to the territory he controls, depends on which biologist you are talking to. At any rate, the male has a definite territory, the boundaries of which are clear to him. Generally, he does not mind other species of small birds using his area. What he will not tolerate is the intrusion of another male bobwhite. Every morning, the male whistles his loud and precise "bob-white" call. Contrary to what some poets believe, this is not a cheery good morning to the world. It is a signal to all other bobs in hearing distance that he is on the job guarding his territory. It is both a warning that his land is posted and an invitation to a female to join him there.

Photo By Charles Dickey

If you hear a bobwhite whistling at a distance, pucker your lips and return the same call, which is easy to imitate. He will reply to you, sometimes for as much as an hour if you wish to keep it up. He is letting you know where he is, and this means where his territory is. He will not be alarmed as long as you, the imitation bird, keep your distance. If you're a good woodsman and can sneak closer without being seen, you'll notice a change in the frequency and intensity of his calls when you, with your answering calls, pass the invisible boundary of his territory. He may very well run or fly toward you, determined to defend his domain from an encroaching male bobwhite.

A similar pattern of response can be evoked from a mockingbird, a robin, a dove, a goose, and from many mammals. Challenging territory in the breeding season is an excellent way to attract wildlife for observation. It's easy to practice on songbirds in your own yard. The trick is to give the right calls and not to be seen and identified. Once you're recognized as a faker, the game is over.

(Continued on next page)

King of the upland game birds is wild turkey, far left, classed as big game in Florida. Calling this wary critter, and others, is great sport—in season or out; with or without a gun. Author, below, tries to fool his gobbler with "talk" of a lovesick turkey hen. Various game calls, at left, include the mouth- and box-type turkey calls, bobwhite whistle, and crow, duck and hawk calls.

Photo By Steve Theg

Photo By Lovett Williams

(Continued from preceding page)

Knowing what stimulates a response from a bird or mammal is learning that species' weakness. This has practical value to the hunter. During the quail hunting season, the birds are gregarious and run in coveys of 10 to 20 birds. After a covey has been widely scattered, the birds are anxious to get back together. If the hunters are quiet, they will soon hear the anxious recall cry of "perlee, perlee." A broken covey late in a winter afternoon will quickly fill the air with recall whistling, as no bobwhite wishes to sleep alone.

Some hunters become quite skillful at using a metal, cylindrical call, well drilled with holes, to imitate the recall cry; others are expert with using just mouths. The replies to the hunters indicate where the birds are, and the hunters can move in for a flush, with or without dogs.

I have seen a few hunters expert enough to whistle late in the afternoon and have birds fly to them. Of course, most quail hunters don't slow down enough to call and prefer to have their dogs do the locating by winding—not that a few old dogs don't get wise and learn what the quail whistling means.

An interest in learning to call leads to more knowledge and understanding of wildlife. Or does an interest in wildlife lead one to a desire to learn calling? Whether the egg or the chicken came first, there is no doubt that a knowledge of calling, and the ability to call, leads to more enjoyment in hunting or just watching wildlife.

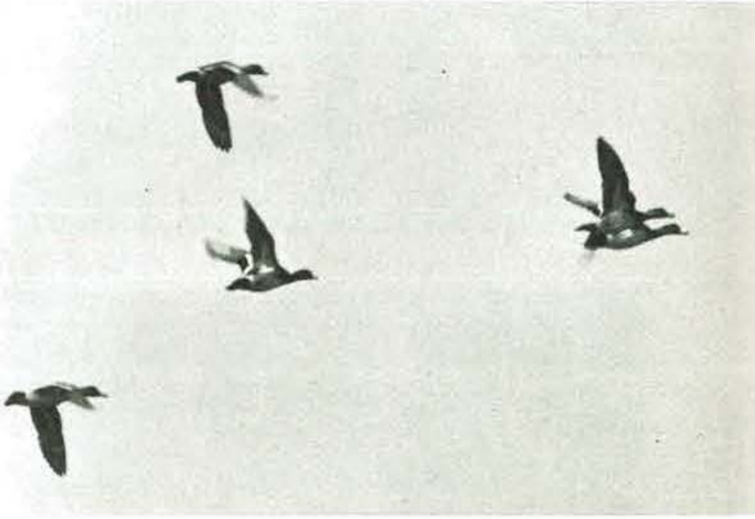


Photo By Wallace Hughes

Calling crows to the shotgun has long been a favorite off-season sport. Some people frown on this because there is evidence crow populations have decreased during the past decade, possibly because of insecticides and pesticides.

If you live in a city, you might not understand why some people wish to shoot crows, a bird seldom used for table fare. On the other hand, if you are a farmer with an orchard or pecan grove, losing hundreds of dollars annually to crows, then you probably wish more people hunted them. Whatever your feelings about crows, they are highly responsive to calling. If you don't wish to shoot crows, it is just as satisfying to call in a flock and get divebombed by them. When crows fly into battle action, it's a sight to behold and something to hear. It's aggression on black wings!

There are more than 20 types of crow calls, the best usually made of wood with adjustable reeds for varying pitch and tone. The crow caller must know what makes the crow respond. Crows are curious, and a simple "caw, caw, caw" may bring a few. The crow is loyal to its flock and young in the nest. It seems to love a fight, especially with a hawk or its deadly enemy, the horned owl. Crows like excitement. On a quiet morning, an expert caller can pull crows from more than a mile away when he blows an urgent "fight, fight, fight." To incite the crows to fever pitch, some callers intersperse a hawk whistle, working the black warriors into such rages that they come back time after time despite shooting and a number of dead crows.

Camouflage clothing and careful movement are important in successful crow calling. Once they've seen you and identified you as man, the game ends.

In the past 15 years, predator calling has increased in popularity across the nation. It's used to attract coyotes, foxes, hawks, owls, bobcats and raccoons. The caller puts out a sound like a squealing, suffocating rabbit, or a strangled seagull, or the hinges of hell, or all three combined. Most animals are undoubtedly attracted because it sounds like an animal in trouble and handy for consumption; others surely come to it out of curiosity.

A predator call is a handy call to have on Halloween night. Also, it's ideal for practice at midnight if you have a neighbor whom you wish to afflict with revenge. You can get surprising results by squealing it at 4:00 a.m. in a convention hotel in a large city.

The predator call gets better results at night for mammals and owls. If you decide to try it, you must be careful not to shoot a protected species. Just about everything which responds has total protection or a closed season. Hawks and owls are protected in Florida. If you use a light at night, don't have a gun or do anything which might make people think you are jacklighting deer. In fact, it's a good idea to call your wildlife officer before you leave and tell him where you'll be calling.

It certainly is not necessary to shoot a predator as the final step after fooling it with a call. It's exciting enough just to hear and see it working towards you, to note the startled expression when it realizes it has been duped, and to watch the fast getaway.

To many hunters, calling ducks is the best part of waterfowling. To learn to give a high-ball call

(Continued on next page)

Photo By Charles Dickey

For some rare outdoor fun, get some basic crow hunting equipment, and find yourself a farmer friend who's losing money due to crow depredations—then treat yourself to a shoot! Take several buddies. In a fight frenzy, these black rascals keep swarming in, despite the gunfire. Successful duck calling requires far more finesse. Novice waterfowlers are amazed at the variety of "quacker" language, but the ones that are dedicated keep practicing for perfection!

(*Continued from preceding page*)

which pulls ducks rather than spooks them takes long hours of practice, plus a patient wife. One of the best places to practice is a wildlife refuge. With a call but no gun, you are free to practice near or in most of the sanctuary areas.

Some hunters claim that successful turkey calling is the greatest of the art. It is a traditional method of hunting, first learned from the Indians, with a variety of calls from sucking a turkey wing bone, to scratching slate with a cedar stick, to actuating a mouth yelper, to operating the common scratch box—which can be shaken for a gobbling sound.

The hunter must appeal to a particular characteristic of turkeys. In the fall, an ideal approach is to break the flock and then to yelp recall, or even the "peep, peep" of a lost juvenile turkey. The flock wants to get back together.

In the spring, the hunter plays the role of a lovesick hen to lure a gobbler towards a new conquest. Or the hunter may gobble as though he is a new monarch moving in to take over the territory.

Most turkey hunters do as little calling as possible, fearing a wrong note will scare the bird. Two of the best turkey hunters I've known did just the opposite. They moved through the woods with mouth yelper and scratch box throwing up a symphony of turkey flock music. They imitated juveniles and hens, and gobbled like dominant males. When they got a reply, they settled into a hiding place but still kept up the chorus. I do not know if they were playing up to the curiosity of the real turkeys or acting as though a flock was invading, or both, but they brought turkeys home every season.

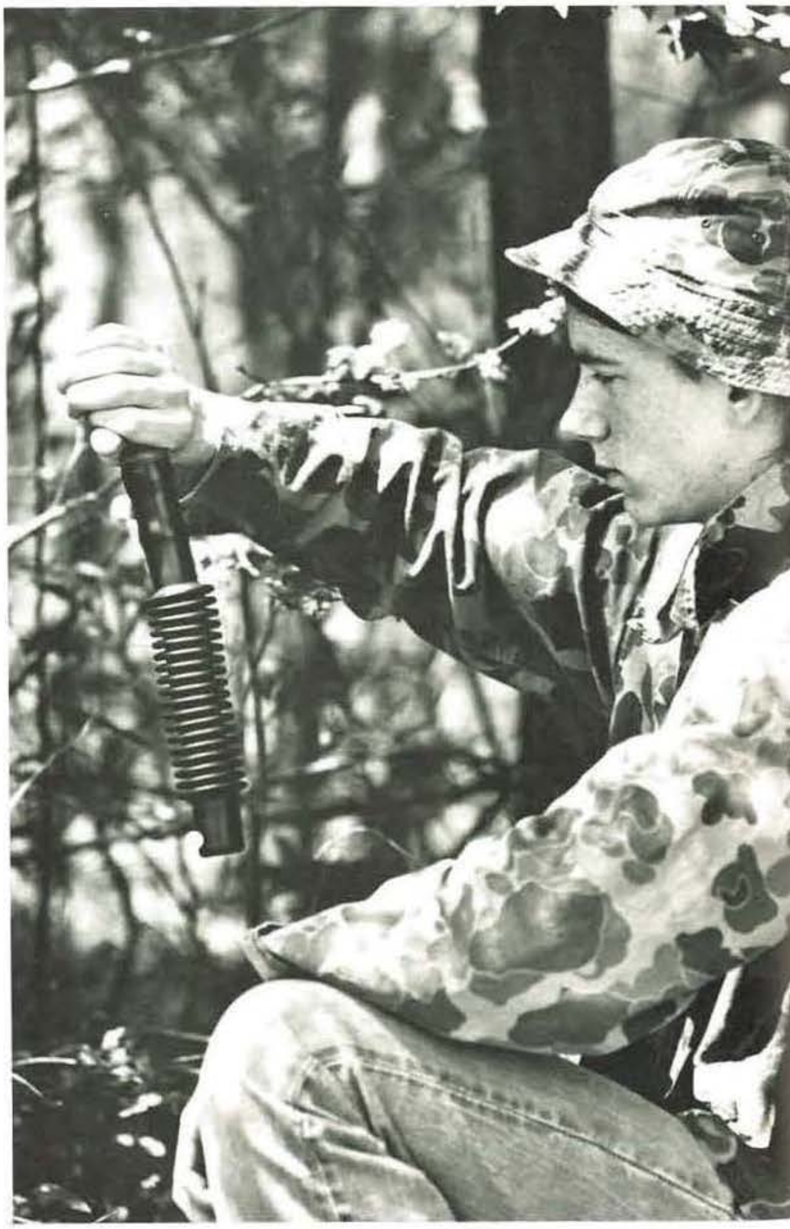
If you wish to learn wildlife calling, and have a place to practice, you can learn much of it at home by listening to instructional records and reading about the behavior of species you wish to talk to. Before you do much practicing on the call, try to find an experienced caller and induce him to tutor you on breath control, positioning the call in your mouth, and other fine points. Listening to tapes will help you learn the right sounds, pitches, and notes. It will save you weeks of time if your tutor will take you afield to show you his technique of calling, such as calling intervals, his action when he gets a reply, and how he selects a hidden spot to call from. It will be helpful if he walks out 50 or 100 yards and listens to your imitations and returns to make constructive criticism. A call may sound very different at a distance than what you think it does with the call only five inches from your ears.

Two sources of information and aids on bird calling are: National Audubon Society, 650 Third Ave., N.Y., N.Y. 10022 and National Wildlife Federation, 1412 Sixteenth St., N.W., Washington, D.C. 20036. Your local chapters of these organizations can put you in touch with experienced callers.

The outdoor magazines have advertisements on a variety of mouth and electronic calls, instructional aids, and other information on calling wildlife. Your local sporting goods store is a quick source of information.

One warning: Mouth calls are irresistible to small children. When the neighborhood gang discovers you have game calls, they'll be drawn like bees to honey. On the other hand, if you have to "children sit" some evening, game calls are a good way to keep them occupied, if *you* can stand it. ●

Photo By Charles Dickey



An effective self-blowing call for dabbling ducks—mallards and others—is the bellows type. Shake it with one hand, as shown, and it sends out a merry feeding chuckle. Play it as an accordion, with both hands, and it produces a loud highball call that says, "Hey, come on down and join us!" Passing ducks are supposed to accept this lure and turn around.

Cooper's Hawk

By GENE SMITH

YOU MAY KNOW the Cooper's hawk by another name: blue darter, big blue darter, or just plain chicken hawk. All three describe this bold predator to a degree.

The Cooper's hawk, *Accipiter cooperii,* is a medium-sized hawk that feeds mostly on small birds. It is a low-flying, extremely agile hawk that frequents woods and adjacent clearings, where it finds ample prey. It is no larger than a common crow.

Only two *Accipiters* (bird hawks) are found regularly in Florida: Cooper's, which is reported throughout the state but is termed "an uncommon resident" that breeds only in the northern portion; and the Sharp-shinned hawk, *A. striatus,* a smaller, lighter version of the Cooper's, and a winter visitor only. (The sharpshin is the *little* blue darter colloquially.)

Ornithologists say the Cooper's is *the* chicken hawk in North America, since it takes more domestic poultry than all the other hawk species combined. But it is not as damaging today as it once was, for not as much poultry ranges unpenned these days, even in rural areas, and, too, there aren't all that many Cooper's around anymore.

Unlike the larger *Buteo* hawks, which have long, broad wings and fan-shaped tails—the better to soar with—the Cooper's has short, rounded wings and a long, rudderlike tail that aids it in maneuvering through the trees as it darts about in pursuit of prey. Its tail is rounded at the end and has narrow black bands across it.

The Cooper's typical relaxed flight consists of a series of three or four wingbeats followed by a glide, then more flaps and another glide. But in pursuit, it goes with great speed in a direct line if in the open, often close to the ground and with the wings half folded. It is capable of stopping abruptly, flipping onto its back, or zipping around a tree trunk to snatch a robin from the ground or knock a field mouse senseless. Many observations confirm that the crafty Cooper's will keep an object between itself and its prey until the last moment—a tree, a fence, or even a house or shed. And it is so fast that it nearly always makes its kill.

For boldness, this hawk has no equal. There are records of its robbing a poultry yard while several people were standing around. In one case reported by Bent, a Cooper's chased a chicken into a barn, where a farmer killed it with a buggy whip! When feeding, they can often be approached to within a few feet before they fly. And Bent also reported that once a Cooper's attacked a fellow who was collecting fossils. He defended himself with his geology hammer and succeeded in killing the irate bird after it renewed the attack repeatedly. But, of course, such instances are rare. Most of the time this hawk sticks to the woods and goes for easier prey.

One study of its feeding habits showed Cooper's hawks took 82 per cent birds. Included were yellow-shafted flickers, meadowlarks, quail, grouse, robins, jays, various woodpeckers and sparrows, starlings, grackles, doves, domestic pigeons, teal, ducklings of various species, and many small birds of brush and woods habitat—vireos, kinglets, warblers, nuthatches, and others. The remainder of its diet included squirrels, rabbits, young skunks and bobcats, opossums, rats and mice, snakes and lizards, butterflies and moths, grasshoppers and crickets, and even snails.

The handsome, black-capped Cooper's hawk is distributed over most of the United States and parts of southern Canada and northern Mexico. In mixed forests of conifers and deciduous trees it may nest in either type, usually from 20 to 50 feet or more above the ground. However, in some areas of the Southwest where tall timber is scarce, this hawk nests in low trees and has been known to nest on the ground in a few instances. If it chooses a hardwood, the stick nest is placed in a main crotch, where it is secure against storms; if a pair selects a pine, the nest is built next to the trunk on several horizontal limbs, for maximum support.

The egg cup of the Cooper's nest is shallow and nearly always well lined with bark chips. Small amounts of breast down are added, and quite often a few green leaves or pine needles.

In Florida, this species lays three or four eggs to a set, although up to six have been recorded elsewhere. They are bluish white, but not infrequently show some pale brown spots.

Incubation, mainly accomplished by the female, requires approximately 36 days, according to BIRDS OF PREY OF THE WORLD, by Grossman and Hamlet (1964), which adds the interesting note that male young leave the nest when 31 days old; females at 34 days. (Incidentally, females are larger than males at all ages.)

Cooper's hawks pair in early spring and are quite faithful in returning to the same area to nest for several years. They may build a new nest annually, however, and use the old one as a feeding platform. Or, they may build on an abandoned crow or squirrel nest, or simply refurbish their own nest of the previous season.

Bent says the Cooper's full adult plumage is not acquired until its third year, and points out that the adult male is more brightly and heavily marked below and more bluish above than the adult female. ●

Photos By John Fix

an island of rare subtropical charm

Key Biscayne

By JOHN FIX

If you're one of those who visit south Florida just for its night life—its race tracks, glittering bars, and plush night clubs—Key Biscayne is not for you. But if you delight in miles of sun-drenched beaches and tropic beauty that would put to shame many a South Sea isle, the thrill of history, and the lure of buried treasure, you'll love this bit of land just five miles across a broad causeway from the skyscrapers of Miami.

Richard M. Nixon fell in love with Key Biscayne when the presidency was only a gleam in his vice-presidential eye. Ever since, he has made it his winter home.

Before him were others, equally enamored of the lovely islet, flanked as it is by the Atlantic Ocean and the sparkling waters of Biscayne Bay. There were Indians, explorers, and pirates; rich men, adventurers, and thieves. Most of these paused only briefly as they slipped into the pages of history.

The first of which we have any written record was John Cabot. In 1497, this intrepid Italian-turned-English explorer sailed his ship, *The Matthewe,* into Biscayne Bay, landed on Key Biscayne, and thereby made it the earliest discovered land in the United States. Cabot named the southern tip of the island, now known as Cape Florida, "Cape at the End of April," and excitedly reported in Europe his discovery of a new world "across the Western Sea."

Ponce de Leon, in his restless and futile search for a fountain of youth, stumbled onto the island in 1510, and ignoring Cabot's prior designation, put it down on his charts as "Santa Maria." This was more than 100 years before the Pilgrims came to America.

But even before that, Key Biscayne was appearing as a landmark on the famous Cantino map of 1502, the first widely circulated map of the Western Hemisphere. By one name or another, and sometimes without any name, Key Biscayne is shown on charts used by most of the world's explorers.

The first permanent resident of the Key was Don Pedro el Biscaino ("the Biscayan," from the province of Biscaya, in the Basque region of northern Spain), who is generally thought to have given the bay and the island its present name. Don Pedro arrived with a land grant from the Spanish king. He had held the title Keeper of the Swans at the court of Spain.

Then there was the notorious pirate Black Caesar, who made Key Biscayne his headquarters.

Black Caesar is rumored to have buried millions in pirate treasure somewhere on the southern half of the island.

Even today, homeowners in the area dream of poking a spade into the ground and striking it rich. Some are seen surreptitiously stalking the beaches at night, bearing electronic equipment which hopefully will emit discreet beeps in the presence of metal.

Black Caesar was reportedly a giant Negro "with arms like the mast of a ship." He was a slave who escaped when the ship carrying him foundered on a Florida reef. Caesar drifted in a small boat until he was rescued by a sloop. He took over the sloop by brute force, killing members of the crew who would not join him. Later, he commandeered a larger vessel and became the notorious "Scourge of the Keys."

Eventually, Black Caesar was captured. He boasted just before they hanged him, at Williamsburg, Virginia, in 1719, that he had held captive a harem of 100 beauteous damsels, some white and some black.

Black Caesar was followed on Key Biscayne by another pirate who, either in tribute or for reasons of paternity, called himself Black Caesar II. Little is known of him except that he was half Negro and half Scot, and that he bragged when drunk of having pirated and hidden 26 tons of silver. None of it has ever turned up. Some say it it is buried on Key Biscayne, or on nearby Elliott Key, site of the newly created Biscayne National Monument.

In 1825, the United States Government built a lighthouse on the Cape Florida tip of Key Biscayne. This lighthouse still stands. It is said to be the oldest structure in south Florida. It has led a perilous existence, battered as it has been by hurricane winds, defaced by graffiti, pounded by a surf that has gnawed away more than a mile of sand that originally separated it from the sea, and, when it was only 11 years old, survived a vicious Indian attack that gutted its interior with fire. (See "Old Cape Florida Lighthouse" by John Fix in FLORIDA WILDLIFE, July 1966.)

The lighthouse, plus buildings that simulate dwellings of the early 19th century—these house educational material and historical artifacts—are part of the present Cape Florida State Recreation Area, created in 1966. On the northern portion of the island is another park, Dade County's sprawling Crandon Park, with spacious beaches and a most interesting zoo.

Between the parks lies the residential third of the island, comprising the Town of Key Biscayne, a colony of luxury homes (among them that of President and Mrs. Nixon), high-rise apartments, condominiums, and a number of large hotels. If you dig beneath the surface of the present town, through the sand that has since accumulated over the island, you will come to the rough pavings of an earlier town that dates back to 1839.

Most of Key Biscayne's 2,110 acres are heavily wooded. Coconut palms, sea grapes, and Australian pines predominate among the trees. The palms are descendants of those that were part of a commercial coconut plantation which succumbed to competition from the Philippines in the 1930's. The sea grapes and Australian pines were planted to serve as windbreaks to protect the fruit trees and a crop of pineapples from the gales that pelt the island with sand and salt spray.

Other trees, such as the Florida mahogany, were planted to provide shade for tender seedlings. Not a few of the plants on the island are believed to be descended from those set out experimentally by the island's first lighthouse keeper, John du Bose, at the urging of botanist Dr. Henry Perrine, who shipped them from Campeche, in Mexico, where he was U.S. consul. A few years later, Dr. Perrine was killed during a Seminole uprising while carrying on plant experiments of his own on Indian Key (also included in the state park system), 75 miles to the south.

Key Biscayne is within sight of the great metropolis that is Miami, but the isle is blissfully removed from the hubbub and clamor of the city. On the island you can loll on sunny sands, doze in the shade of the myriad palms, watch birds, gather shells, or stroll a jungle trail seemingly remote from civilization.

There are few places in our world today where such pleasures can be so easily arrived at or so inexpensively enjoyed. Provided, of course, that these are your cup of tea; that you prefer wildlife to *the* wild life. ●

Lush shade of Australian pines and coconut palms cools winding road near Cape Florida on Key Biscayne, left. Site of Cape Florida Lighthouse, shown below, the oldest structure in that part of Florida. Built in 1825.

THERE ARE FAMOUS bass fishermen, famous tarpon fishermen, and famous trout fishermen. As far as I know, there are no famous bluegill fishermen. If you want fame, trophies, or riches, the bluegill is not the way to go.

I keep reading about sportsmen who come into a clubhouse and savor the memories of a wonderful day on the water or afield, along with strong drink. They toast the memories of big bass, bobwhite quail, permit, or sailfish. Apparently bluegill fishermen do not drink much, or they do not have clubhouses. Anyway, it is not very stylish to go misty-eyed over an escaping bluegill, and if taxidermists counted on bluegill business, they'd starve.

I have given considerable thought to the reasons why bluegill fishermen are not held in high repute, and I think one of the main factors is clothing. What does a bluegill fisherman dress like? See? You have no mental picture of a bluegill fisherman.

A trout fisherman worth his salt wears waders and a fishing vest. Up until lately the bass fishermen were a little nondescript, but now that the jumpsuit has come into its own, along with all of those colorful patches advertising bass clubs, outboard motors, plastic worms, and rods, the bass fisherman is a real individual. A deep-water ocean angler has all sorts of sporty togs.

I once thought I would add a little class to bluegill fishing, so I went and caught some bluegills while wearing a fly fisherman's vest and a canvas hat with a wood duck feather in the band, but it didn't catch on.

There is a thing the grouse hunters have up in New England—a lot of them wear neckties while hunting, I am told. It might be that a necktie would help the bluegill fisherman's image, but I have not tried it.

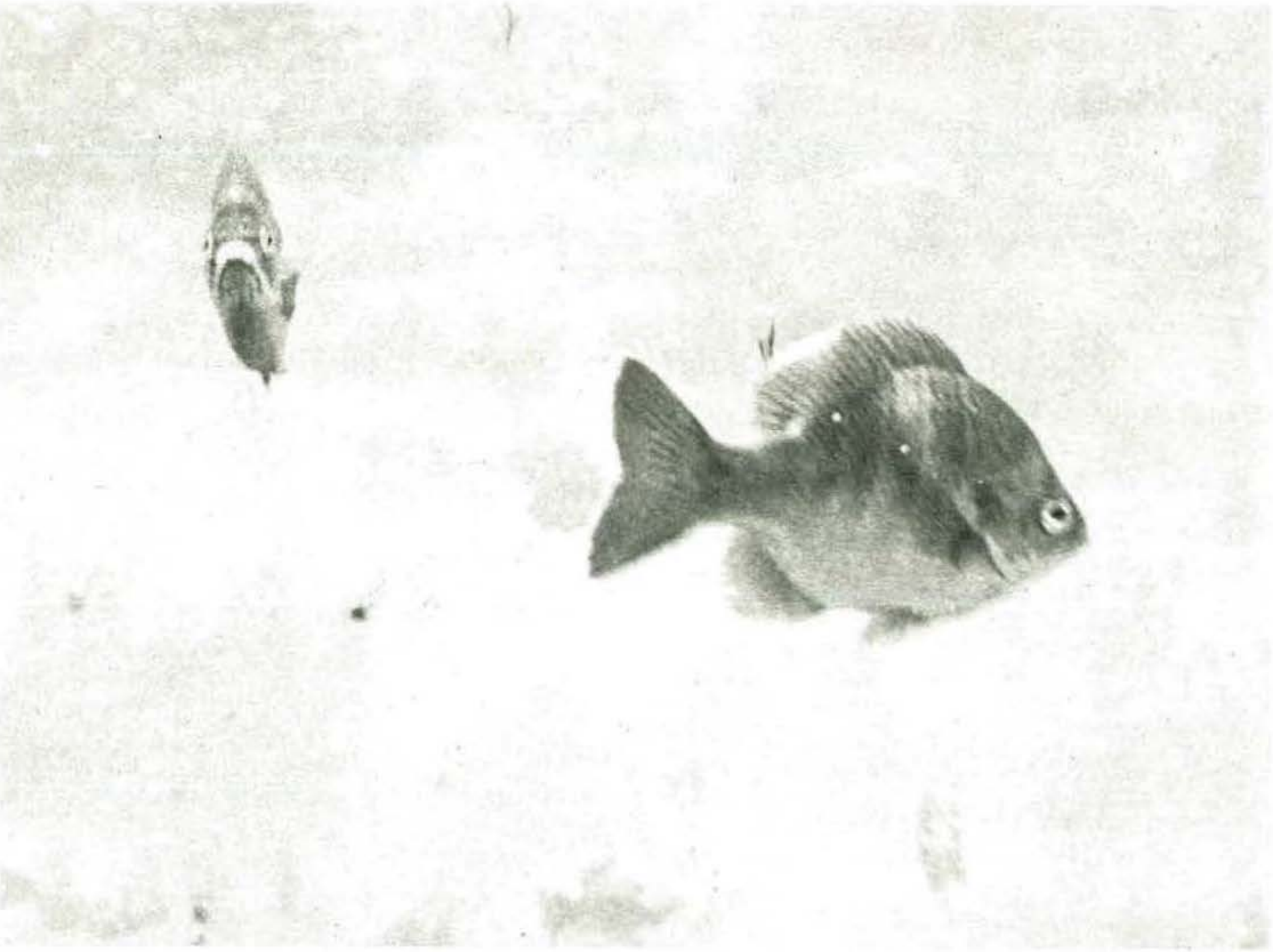
It is a lot of fun to catch bluegills on a very light bamboo fly rod, and I have done quite a bit of that, although some people say it is a waste of a hundred-dollar stick to catch bluegills on it. Since I am pretty well south of where it could get me into trouble, I might say that an 8-ounce bluegill feels much the same as an 8-ounce trout on a hundred-dollar rod.

I'll qualify that last statement a little. Let's say the bluegill pulls harder than an 8-ounce trout, but usually doesn't run as far on a very light line or leader. It is, of course, very unusual for a bluegill to be caught on any tackle suited to his size; many fresh water trout are hooked on tackle that is pretty sorely taxed, even by a half-pound fish. Most bluegills are caught on bait, generally with cane poles and with lines quite capable of horsing

few fresh water fish are as sweet to the taste or as scrappy for their size . . .

bluegills are bream

Photo By Charles Waterman



Fly fishing and cane poling with flies and level fly line are standard methods for catching bluegills, above, and other panfishes. In roadside canals and streams with heavy vegetation, a small boat, left, facilitates fishing. Electric motor's tops for a quiet and easy ride that doesn't chase fish into hiding.

Photo By Jim Barkuloo

By **CHARLES WATERMAN**

them out without finesse. Now most cane pole fishermen lift upward on the fish as he is hooked, and although the bluegill may be the hardest of all fresh water fish to lift for his size, no fish is programmed for extended resistance when the pull comes from almost directly above.

The bluegill gets his hard fighting reputation from turning on his side and thus being hard to hoist, and there are those who say he won't run at all, ever. He just goes round and round, they'll tell you. That's not true. He's no wahoo, but if he's hooked fairly far out so that your lift isn't almost straight up he'll dart away, generally toward cover. A great many lines are broken on "bream" because the fisherman jerks instead of pulling. Turned sidewise to the rod tip, whether it's above him or far to one side, a slab-sided bluegill is hard to move quickly, and it's not unusual to catch a big one with a piece of broken line hanging from his countenance. The guy who breaks him off generally thinks he has lost a much larger fish.

The bluegill gives the impression of being capable of swimming right through a crappie. He doesn't swim very fast when hooked, but his direction changes are quick.

A bluegill that weighs a pound is a big one in nearly all Florida waters, but some Southern lakes produce "monsters," some of them getting into the 3- to 4-pound class. There are also some very large bluegills in the lakes of the northern tier of adjoining states, and in occasional hotspots in between. Where I have fished for them, the bluegills tended to run to uniform size. It's possible to catch a string of them with only an ounce or two separating the largest from the smallest.

In Florida, the largest I've caught have been on grass flats when I was after bass. I've never found the bluegill fishing very fast in such places, and the assumption is that extra large fish are loners—big enough to make themselves at home among much larger fish. A bluegill that weighs a pound

(*Continued on next page*)

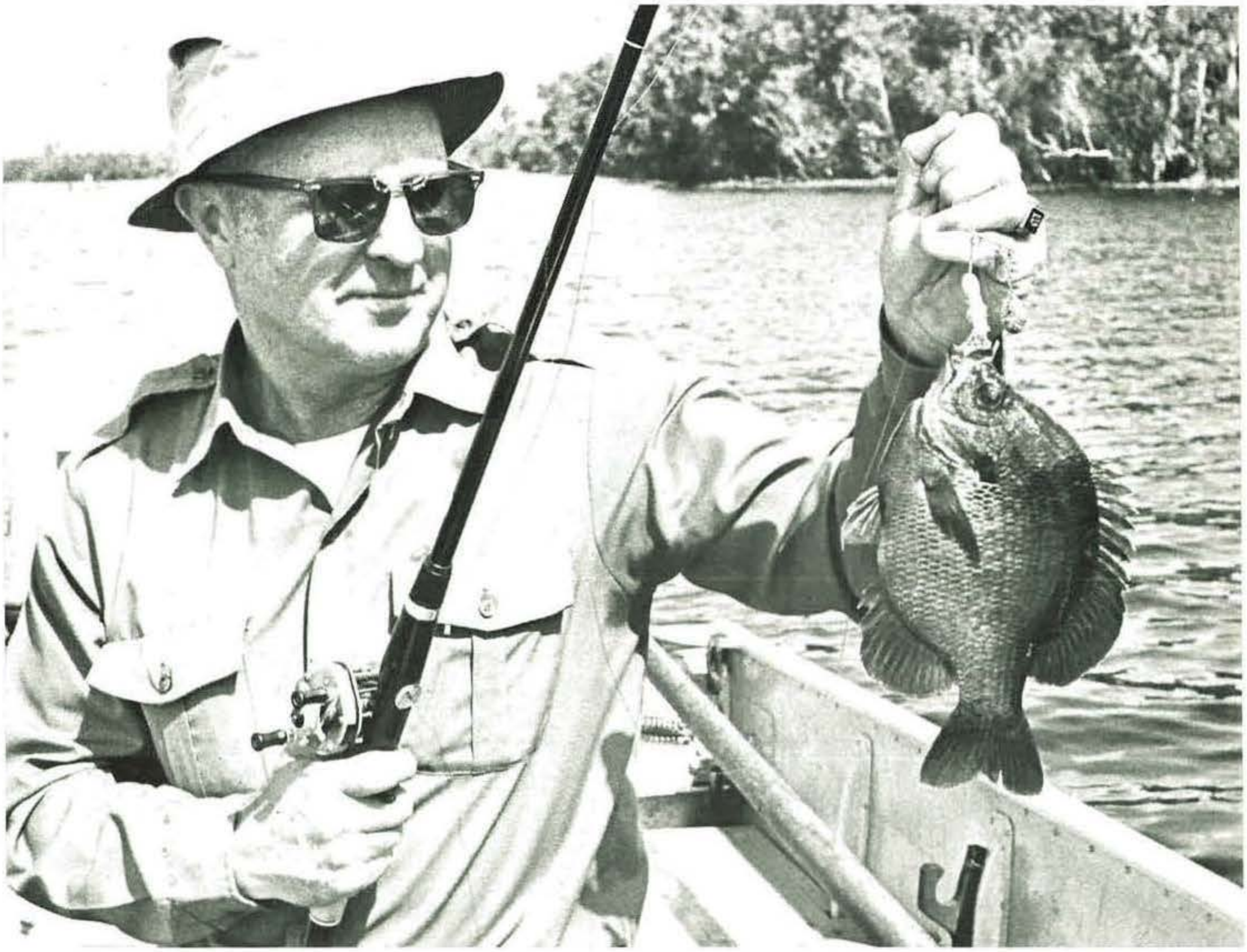


Photo By Debie Waterman

A big bluegill that took a spinner bait while the author was fishing for bass over some grass flats. Big bream like this are frequently loners and may be caught in unexpected places. This one went a pound—a whopper for Florida, but far off the world record of 4 pounds plus!

(Continued from preceding page)

is a whopper everywhere I've fished, but I've caught heavy strings of individuals that weighed around half that much.

Bluegills tend to overcrowd when found in good water, and the matter of bag limits causes considerable argument. Stunted fish can be found in swarms, half a dozen of them chasing any small lure you throw. In such a place it is impossible to fish them out with hook and line, and whether you keep, discard, or return small ones to the water is unimportant. You're handling a hundred fish in a place that's overcrowded by thousands.

The relationship of bluegills to bass seems simple at first glance. Bass eat them, so it's assumed that if you have enough bluegills you'll have plenty of bass. But it doesn't work out that simply. If the bluegills get too thick, they compete with small bass, and you may end up with a jillion small bluegills and just a few overstuffed bass. To make it complicated, there is the problem of cover. If there's too much, it's impossible for the bass to keep the bluegills under control.

I've long since given up as a judge of bluegill habitat. The difference between just right and too much of everything is too complex for me. It's very easy to become an instant expert on bluegills once you've caught them every cast for a while. The next day you may be wearing out your arm on what looks like the same kind of water—catching nothing.

There are Florida fishermen who fish bluegills only when they're spawning in numbers, and this is usually effective when you can actually see the beds on a light, sandy bottom. It happens in late spring, for the most part, although bluegill spawning is drawn out over most of the year.

The female deposits something like 20,000 eggs and the male guards the nest. Sometimes they'll move a considerable distance from the nest to take a lure; at other times you need to drop it right on the target. Unless the nest is very shallow, I've found that a sinking lure works best.

It isn't true that you can tell the size of a bluegill by the size of the bed. I have seen whopping specimens guarding tiny nests in sandy patches among the rocks along the nearly vertical banks of canals. However, where there is plenty of open water the bed's size may be an indicator. Beds are usually in bunches.

In hot weather, the best bluegill fishing is generally in late evening. Probably it's just as good in early morning, but not many of us get up that early for a bluegill—we're more likely to be after bass at that time of day. I've found that the peak of evening bluegill feeding occurs quite late, almost at nightfall. Like bass, bluegills frequently feed at night, but they aren't fished much then.

They vary a lot in color, depending on the water and bottom. Muddy water generally has light-colored fish. Dark, tannic acid-stained waters produce dark fish, sometimes almost black.

There are endless fishing methods but some of them are a lot more fun. There is this one involving a "flip pole" (it's called many other things in various parts of the country). You simply take a light cane pole that works easily with one hand and attach a short section of level fly line with a piece of leader material, the whole works being a little longer than the rod itself.

You should have three feet of leader for best results, and about 6-pound test line is right. The fly line is heavy enough to throw so you can use a fly, popping bug, or very light bait on the leader. A small spinner-fly combination works well. Some fishermen use very small plugs. Level fly line is inexpensive, and it's hard to find it too heavy for this use.

Ultralight spinning is one of the very best methods, keeping to something like 4-pound monofilament line. Some good anglers use 2-pound line, but that's cutting it pretty fine if there's much cover to drag the fish out of, and it's an abomination in bonnet (lily pad) water. I'd much rather use fly tackle with surface lures, but the spinning outfit may have an edge when you're fishing fairly deep.

For subsurface lures, it's hard to beat a very light spinner with some shiny beads for weight and a tiny treble hook dressed in squirrel hair, deer hair, maribou, or other crawly substance. A very small pork rind can be good. The sponge rubber "bream killer" with rubber legs can also be used with a small spinner and fished fairly deep, although it's normally intended as a surface lure. My chief trouble with these spinner combinations is that they often twist the light lines. Bead swivels can be a help, but the rubber spider—"bream killer"—is a bad offender if retrieved fast.

The retrieve is generally slow, which places a premium on very light and easy-turning spinner blades. In the deeper places you may let the outfit sink for a while before starting to retrieve. Against shallow banks you begin cranking immediately. The rule of slow reeling is sometimes suspended, especially in the shallows. If you use small, sharp trebles, hooking the fish is seldom a problem.

The easy-turning spinner not only works well during a slow retrieve; it also does a good job for you while it's sinking, either turning or fluttering as the lure goes down. Bluegill depths are pretty critical, and it's often wise to establish a count to be sure of getting the right depth. There are even occasions when smaller fish are near the surface, with the larger ones close to the bottom.

Very small jigs have caught a lot of bluegills, although I prefer the spinner combinations. Most of the bluegills I've caught on jigs have been incidental while I was really after crappie. There are times when the two fishes are living pretty much together. There are times when a small jig works well with a bobber on a spinning rod, and many crappie fishermen use a float with their jigs.

I know there are many small plugs and metal spoons that tear them up, but the turning spinners have been better for me, and I'm partial to the treble hooks because a bluegill has a very small mouth and can get hooked on them while just nipping.

For underwater lures, color is of varying importance. Yellow and white are most popular, and a fluorescent orange fly has been exceptionally good at times. Our most effective underwater fly is a green nymph with a little white in it, but that's used with a fly rod most of the time, rather than with the spinners.

Not all effective bluegill lures are tiny. Bob Budd has caught thousands of them with a sinking plug behind a bead chain and a spinner, using two small treble hooks. The overall thing is much larger than any bluegill could expect to stuff into his gullet, but they take it and that's all that counts.

I have missed hundreds of bluegill strikes because I was casting a popping bug that was too large, but if you use one just a bit bigger than ideal, you have much more chance of picking up an occasional bass.

Fly fishing for bluegills is probably the most fun of all, and there are times when it is by far the most productive method, especially in surface fishing. Bluegills will take little dry flies, floating high and barely twitched on the surface, but the ideal size to please the bluegill is likely to have so small a hook that he's hard to unhook once you have him in your fist, and after you've caught a couple it's generally hard to make the fly float any longer.

The most productive surface lure is generally a small popping bug or a rubber spider with rubber legs. The poppers should have either rubber legs or some feathers or hair that "work" in the water. Most surface bugs or flies are best when worked very slowly. Popping them helps sometimes, but on

(Continued on next page)

(*Continued from preceding page*)

most casts I move the lure very gently at first, and then pop it when I'm about to pick it up, after all else has failed. It is one method I'm convinced is logical.

The sponge rubber things don't float very high, and sometimes I think this is actually an advantage. I have never found energetic manipulation as good as gentle twitches with these.

Although a sinking fly is not always best, I believe the small green nymph, looking like a small woolly worm, and with a very little bit of lead weight under the feathers, is the most productive fly rod lure, day in and day out. There are times when surface bugs and wet flies run about even, and days when one or the other is distinctly preferred.

Since most bluegill fishing is done in warm weather, the most common pattern is for the fish to prefer deep runners during the heat of the day and then start working the top water as dusk comes on. When they're moving on top around hyacinth beds, lily pads or grass fringes, you can frequently see or hear them. Usually their strike is a gentle plop, and moving vegetation frequently means working bluegills, although a lot of other swimming things can move a lily pad.

When you can hear small fish sucking and plopping under floating hyacinths, the chances are that bigger ones will be on top too. I used to think most of those hyacinth nibblers were bluegills, but I've been told lately that a large share of the slurpers are little warmouth perch. The warmouth is even more addicted to heavy cover than the bluegill, even though he isn't as well constructed for sliding between close-set grass stems.

I do most of my bluegill fishing with a very light fly rod, something that takes about a Number Six line, and I prefer a weight-forward line to turn over popping bugs. I consider that too light a rig to use with full-size bass bugs, however, and I've caught more bream with Number Eight rods than I've caught bass with Number Sixes. When in doubt, take the heavier stick. From 4- to 6-pound leader tippets are good.

There are some interesting gimmicks in using the fly rod, one of the more erudite being the matter of a large bug, followed by a wet fly, tiny streamer, or nymph. A foot of mono between the two is enough. The idea is that the popper attracts the fish and they then take the trailer if they don't want the big one. This works for bass as well as bluegills, and often for both on the same evening.

Any successful bluegill fisherman can operate faster if he carries a small pair of needlenose pliers. The snap fish stringer is dangerous to the bluegill's rubbery mouth, and frequently it tears out. If you don't have a livewell, or ice chest, you can just string them through the gills.

Bluegill fillets are good, but you waste lots of fish that way. Most southern anglers fry their bluegills with only heads, scales, and innards removed. Some cook them until the small bones are digestible.

Incidentally, bluegills are bream, although the term is applied to many other sunfishes. ●

Photo By Charles Waterman

Overcrowding is a problem with bluegills, especially in the little farm ponds and backwoods lakes. Bass may not keep their population under control. These are good eating if fried whole. They'd yield a mighty slender filet. Bream feed extensively on the "bugs" found in water hyacinth root.

Sporting Ammo

care and feeding of modern cartridges and shells has been made easy—but there are better ways to keep ammo clean, secure and handy

By EDMUND McLAURIN

When we turn a faucet handle or flip an electric switch, we expect performance for contracted service. Similarly, when chambering a factory fresh cartridge or shotshell, we assume it's going to deliver the goods with customary wallop. To the credit of the American firearms and sporting ammunition industry, we're rarely disappointed.

Most of the familiar name brand ammunition makers are members of the Sporting Arms and Ammunition Manufacturers Institute. By agreement, all ammunition produced by affiliate companies must meet SAAMI standards, and performance dependability is one of them.

Unfortunately, the most carefully produced shells and cartridges may face numerous hazards between the time of manufacture and firing. One of the commonest of these is improper storage.

The receiving wholesaler, for example, may thoughtlessly store a carload shipment of ammunition in a metal warehouse that is hot by day and cool at night; or he may stack cases where they receive the damaging heat of the sun.

Heat and moisture are enemies of sporting ammunition.

Ammunition that reaches the purchaser in perfect condition can suffer heat damage if stored at home too close to the furnace, steam pipes, or other sources of heat. Likewise, it can be damaged if left too long in a closed car glove compartment, or long exposed to the hot sun shining through the windshield of a hunting vehicle.

Such conditions can deteriorate the priming mixture to the point that it will not ignite properly. Also, the powder can be affected by the reduction of its normal moisture content, the result of which is an increase in explosive strength and firing pressure.

Extreme and prolonged dampness, as occurs in many home garages, and in hunting camps that are closed between seasons, is another prime cause of ammunition deterioration. Another is oil seepage caused by leaving ammunition in heavily oiled gun actions (sloppy firearms safety!), which can ruin some types of ammo.

But many a properly cared for round of ammunition never even gets a chance to perform at all.

Every hunting season thousands of single, unfired shotgun shells are dropped by upland game hunters and lost in the grass. It is easy to drop a shell when loading in the field, and equally easy to lose any that are rolling around loose on the floor, when getting out of a hunting vehicle.

Loaded shotshell losses by waterfowlers are frequent occurrences, too, and countless thousands of perfectly good .22 cartridges are dropped in leaves, grass, or soft sand, where they are usually hard to find and pick up. Those that are recovered are invariably dirty, especially if they're the grease-lubricated type. Even when quickly wiped against clothing, or more painstakingly cleaned with a cloth, there will likely be particles of dirt remaining in bullet cannelures, and when it passes through the rifle bore, this grit can be as abrasive as emery cloth. (By examining a clean looking cartridge under a magnifying glass, after it has been dropped in the dirt and wiped off, you'll see the tiny particles of dirt and sand adhering to the lubricated lead bullet. It will likely have a whiskered appearance.)

In addition to picking up abrasive deposits from being dropped, and from the bottom of hunting coat pockets, the soft lead bullet commonly loaded in .22 sporting ammunition is subject to easy nicking and scratching. If extensive, such defects can affect accuracy.

The conventional paper carton so long used by ammunition manufacturers to package 25 shotgun shells is a remarkably practical container, but once opened and partly emptied, or if a full box of shells is accidentally dropped, the little box can become an annoyance. The end flaps tend to pull apart, and the contents may be spilled all over the place.

Fortunately, there are ways to circumvent these annoyances.

To make a paper shell box a bit more durable, tape its bottom flaps securely with transparent tape—and hope the top ones don't pull apart unexpectedly.

There is an alternate approach to keeping shotshells clean, dry and secure. Divide a full box of 25 shells into lots of five, and package each lot in a plastic sandwich bag, folded twice and stapled at the top for a practically waterproof seal. When ready to load your shotgun it takes only a moment to tear open one of the plastic bags. Meanwhile, the rest of your shells remain dirt-free and dry.

(Continued on next page)

(*Continued from preceding page*)

A waterfowler or deer hunter who uses a shotgun can especially use the idea to advantage. You can't possibly fully appreciate the field merits until you try such shell packaging in actual hunting. The prepackaging practically eliminates shell handling confusion and loss of dropped shells.

Another approach to keeping up with your shells, and having them keep up with you, is to purchase a shell bag or belt.

A belt-style shell pouch, made of soft, heavy-duty Naugahyde, that holds up to two boxes of shells is marketed by John Golla, Ft. Lauderdale 33307. This product is used widely by trap and skeet shooters, and can also be utilized for upland gunning.

An improvement, in my opinion—because of easier accessibility to the shells lying on the bottom—is the #77-2P model square-bottomed, two-compartment shell bag made by Kolpin Bros., Inc., Berlin, Wisconsin 54923. The material is brown, oil-tanned leather, and the bag comes with its own around-the-waist belt strap.

Ideally suited to the shotgunner who hunts all day, or hunts far from parked car, is the even more luxurious Kolpin #773 shoulder bag, made from tough, pliable vinyl that won't stiffen in cold weather. It has two compartments, two closure flaps, and a shoulder strap. It will hold all the shotshells a hunter can expect to use in a day, as well as small items he wishes to have along. The #773 Kolpin bag is one of my favorite hunting accessories.

If you're an upland gunner who does not want any kind of bag other than the game bag made in most hunting coats, consider using a shell belt to carry shotshells. A good one is Kolpin Bros.' model #5, made of heavy web, and adjustable to fit waist sizes from 28 to 46 inches. Elasticized individual shell compartments hold twenty shotshells of any gauge, with the shell compartments so located that total weight is well distributed.

A deer hunter using a shotgun and buckshot or rifled slug loads does not need to carry a quantity of ammunition. Rarely will he get the opportunity to fire more than five rounds during a hunt—if that. Ammunition manufacturers are conscious of that fact, and for hunter convenience are now packaging rifled slugs in 5-shell packages that can be easily carried in hunting shirt or coat pocket.

For my own deer hunting with shotgun, I carry both rifled slug and buckshot loads. Two each buckshot and rifled slug loads are wrapped in aluminum foil, slipped into a sandwich bag and stapled shut. This gives me optional choice of two types of deer hunting loads in compact, pocket-size package.

More sophisticated is the use of one of the commercial "Shell-Out" shotgun shell dispensers that clips to gunner's belt. Single shells are withdrawn from the bottom of the container. TOR International, Inc., 4101 East Louisiana Avenue, Denver, Colorado 80222, can furnish the "Shell-Out" in any desired shell gauge size.

Another source for a similar type of shotshell dispenser is MacDonald & Associates, P. O. Box 102, Little, Colorado 80120. Their "Ammo-Organizer" unit loops on the belt and holds five 12 gauge shells or six of 20 gauge size.

Center fire cartridges carried loosely in hunting coat pocket are apt to jostle and rattle or clink with each step the hunter takes. Often inaudible to or unnoticed by the hunter, such sounds are readily detected by the sensitive ears of deer and other game. For soundless carrying, cartridges should be separated, preferably carried in belt-style holder that has individual cartridge loops.

Federal brand center fire rifle cartridges now come in packages that include two plastic, compartmented liners that can be removed and used as cartridge holders worn on the belt. Every time you purchase a fresh box of Federal center fire ammunition you get two new holders of correct size for that particular caliber.

Soft rubber cartridge holders that slip on belt are also available. If not obtainable locally, they can be purchased by mail from Pachmayr Gun Works, 1220 South Grand Avenue, Los Angeles, California 90015. A size can be had for any center fire caliber. These holders are inexpensive.

As any shooter knows who likes to plink away at tin cans, and a variety of breakable targets, pumps and autoloading .22's consume ammunition at a surprising rate. Reloading is frequent, and a chore.

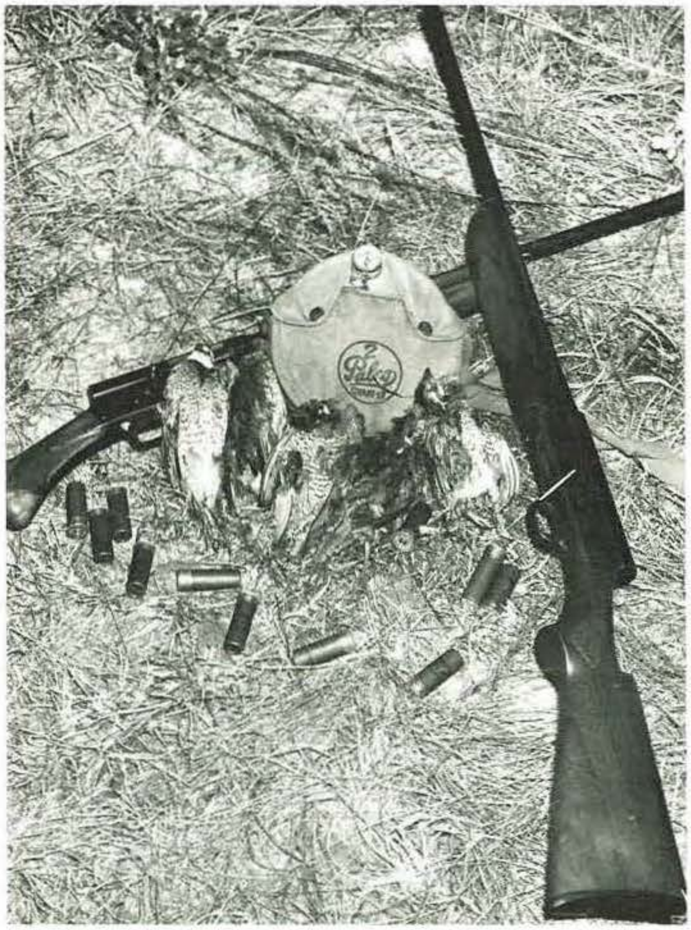
To save time in reloading, commercial shooting galleries long ago adopted brass or aluminum cartridge loading tubes, stacked two dozen or more in upright position in an easy to reach box.

To quickly reload the tubular magazines of slide action and autoloading rifles for waiting patrons, the commercial gallery operator merely has to reach for a pre-loaded tube and pour its contents into the rifle magazine.

The same idea can be used by the average plinker.

Obtain aluminum or brass tubing of proper diameter to give loose, sliding fit to .22 cartridges. Cut the tubing into lengths that will hold the number of cartridges corresponding to the rifle's tubular magazine capacity, but make each length about an inch longer than actual cartridge capacity. (Usually, the number of .22 long rifle cartridges a magazine will accept falls somewhere between 11 and 15 rounds, depending on the model.)

Pinch one end of each of the cut sections together in a vise, or with pliers, then drill a small hole straight through both walls of the tubing near the open end. The diameter of the hole should be a



In the long quail hunting season, Florida hunters drop and lose countless shotgun shells—it's easy to do when you're spotting singles and trying to reload while walking! A lot of these wasteful losses could be prevented. Gritty shells don't help your gun either. Keep ammunition clean and dry.

little larger than the thickness of wire used for ordinary paper clips.

After a tube is filled with the cartridges, slip a piece of soft wire or a section of a metal paper clip through the holes and bend the ends down on both sides of the tube. This stop pin keeps the cartridges from spilling out. When ready to use the loader, simply pull out the wire and toss it away.

One can, of course, use rubber or plastic caps (obtainable at hardware stores) as closures for the pouring end of each tube, but unless permanently fastened to the tubes with fishing line, caps are easy to lose. Discardable pieces of wire work best, I find.

You can make 12 to 15 of the cartridge tubes in less than an hour, and that number of home-loaded holders will enable you to enjoy a fairly long plinking session with minimum time out for reloading.

A strong rubber band cut from a bicycle tube will hold the prepared loaders in a compact bundle, thus eliminating the annoyance of keeping track of a dozen or more.

An inventive shooter in Georgia designed and marketed a very practical .22 cartridge dispenser that worked on the principle of the revolving cap that feeds different size drill bits stored in the handle of a push-type manual drill, known to the hardware trade as "a Yankee drill".

Eleven side-by-side plastic tubes formed a transparent cylinder around a center core. Ten of the tubes had a capacity of five .22 long rifle cartridges each; the eleventh was nonfillable. The bottom end of the container had a revolving cap that had a combination loading and cartridge return hole. As this hole clicked around in alignment with the different tubes, a single cartridge dropped into the shooter's waiting hand.

After desired number of cartridges were withdrawn, the feed hole in the revolving cap was turned in alignment with the nonfunctioning eleventh tube to shut off further cartridge feeding from still partially loaded tubes.

The product carried the name "Shell-O-Matic." Manufacture was discontinued when the producer died. A few units are still to be found in sporting goods stores and gun shops.

The "E-Z Loader," currently available from Del Rey Products, P. O. Box 91651, Los Angeles, California 90009, works much like the old "Shell-O-Matic" dispenser, but is not as compact. There are six long, transparent plastic loading tubes, each holding the number of cartridges the magazine of your rifle will accept when empty. (The dispenser should be ordered in proper tube length, to match the total cartridge capacity of your rifle's tubular magazine.) There is a quick-release carrying strap for belt attachment.

Where considerable informal shooting is done with a .22 caliber autoloading handgun that utilizes the conventional 10-shot-capacity cartridge clip, a solution to frequent clip loading is to have extras that have been preloaded at home. Ten clips holding 10 rounds each will give the shooter uninterrupted plinking practice for two full boxes of .22's.

The total cost of nine extra clips, to add to the one that came with your handgun, can be considerable. But, fortunately, the first cost is the last. The clips last indefinitely. Having extras—fully loaded and ready to use—adds much to the pleasure of field shooting with an autoloading handgun.

For the handgunner who uses a .22 revolver for informal target shooting, there is no mechanical aid to speedy reloading, to my knowledge. While considerable cartridge handling and cylinder loading dexterity can be achieved by a nimble-fingered shooter, cartridges must still be inserted individually in a .22 revolver's cylinder chambers. Sooner or later, however, some ingenious .22 revolver user is going to hit on an idea for speeding up reloading of .22 revolvers. That will be a great day for all of us who do a lot of shooting with that type handgun. ●

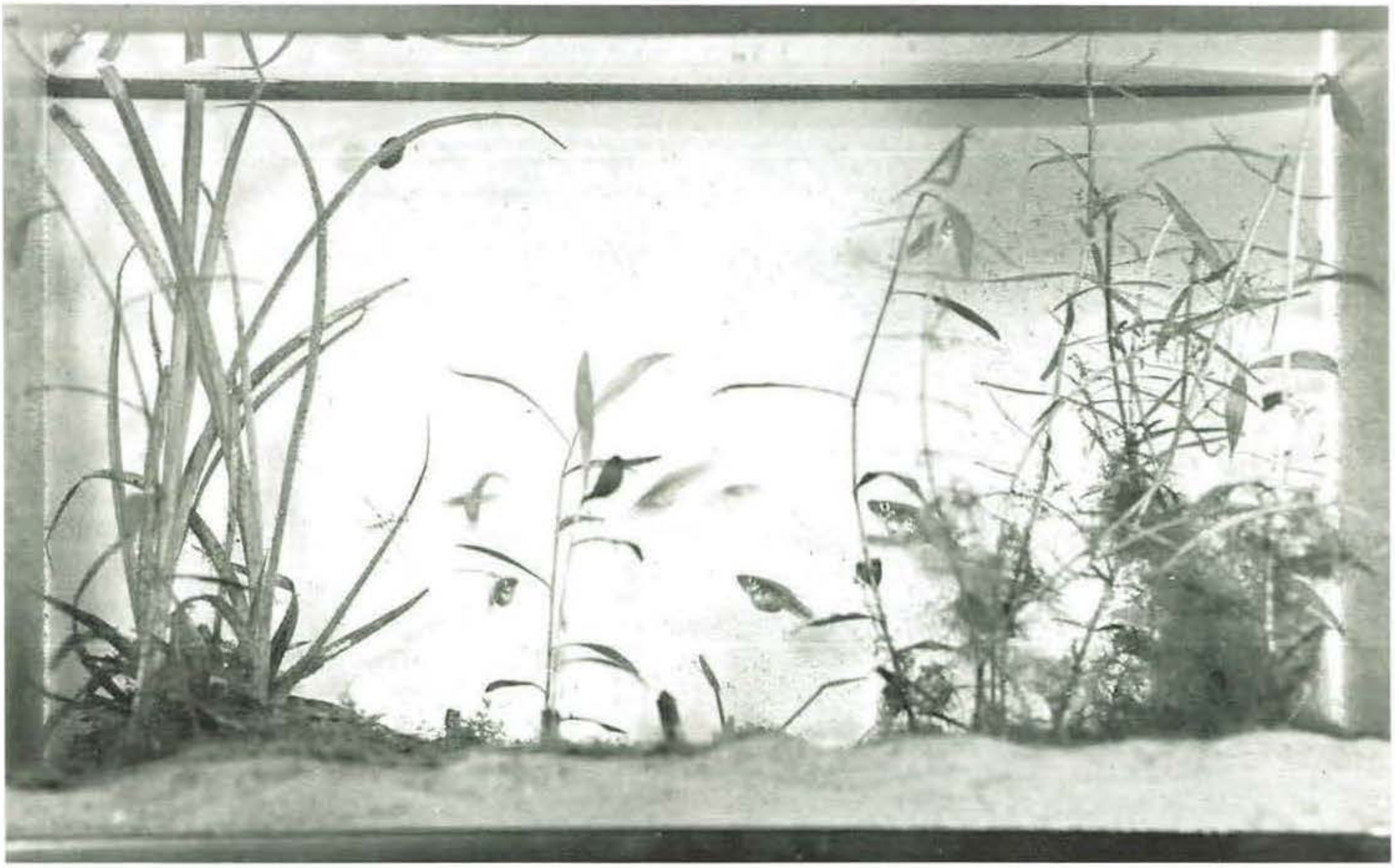


Photo By Steve Theg

a simple tank, fresh water, and some local fish collecting can produce a . . .

Balanced Aquarium

ONE OF THE BEST ways to see nature in action is to set up a small aquarium in the home. It's a tiny world of its own, mysterious at first, but as the interactions of plants and animals unfold there's a different show every hour.

When my stepson, Steve Theg, who is 18, announced at dinner one evening that he was starting an aquarium, I was horrified. I had visions of all sorts of mechanical gadgets such as filters and aerators which would break down in the middle of the night. I could imagine emergency telephone calls to a plumber to come out and save our fish while we kept them alive in the kitchen sink. Worse yet, I thought of the problem of no one at home on weekends or during vacations.

Steve quickly explained that he planned a simple, self-cycling aquarium that maintained itself. He had been reading a book by the famous animal behavior scientist, Konrad Lorenz. In KING SOLOMON'S RING, Lorenz explained how enjoyable and educational it is to collect plant and animal life from a nearby pond and establish your own miniature world in a small glass rectangle for easy observation.

I agreed to Steve's project—with several stipulations. *He* had to look after the aquarium, there would be no mechanical contrivances to break and flood his room, and he would be limited to one glass tank. It has turned out like the Christmas classic where the son gets an electric train and the whole family wants to run it.

Steve, after reading an article on potgut minnows (Gambusia) in the November 1971 FLORIDA WILDLIFE, decided to start with these small, hardy native fish, which feed mostly on mosquito larvae. I wasn't of much help, my main experience having been in just trying to keep minnows alive long enough to fish with them.

For less than $6.00 he bought a tank 14 inches long, 8 inches wide, and 10 inches deep which holds 5 gallons. It has a surface area of 112 square inches. The surface area is critical; most of the necessary oxygen comes from surface absorption.

Although Steve read some books at the local library and checked with pet stores, there's no exact formula on how to start with a proper balance of plant and animal life in 5 gallons of water. There are starter points and tips, but it boils down to experimenting.

There are several ponds near our home in Tallahassee, so there was an unlimited supply of free materials. Achieving the proper balance was the problem.

Steve found soon after he began that something is always trying to throw things out of kilter. Animal life, which uses oxygen and gives off carbon dioxide, must counterbalance the plant life, which takes in carbon dioxide and gives off oxygen into the water. If you put in too many fish and other animals, they soon fill the water so full of carbon dioxide that they die. If you put in too many plants, they will not get enough carbon dioxide. All of the books, including one of the best—William T. Innes' THE MODERN AQUARIUM—warned that most people try to put in too many fish. Steve estimated the maximum his tank would hold would be 10 or 12 potguts.

He collected sand from a nearby pond and washed it until it rinsed clean. He put about two inches on the bottom of the tank and let it settle for a couple of days and then half filled the tank with water. The next task was to collect aquatic plants. As he was not familiar with the scientific names of the plants, he simply collected four species from near the shoreline, where he had frequently seen potgut minnows.

He put in 10 sprays of plants, mostly toward the ends, leaving a fairly clear middle for observation, then filled the tank to within an inch of the top. The plants would be vital for cover not only for small potguts later on but for insect life introduced for food. Surprisingly, all of the plants quickly took hold.

The next step was to catch 20 or 30 potguts and select 10 or 12 for the tank. Steve took a coathanger wire, bent it into a circle, and attached an old stocking as a net; he then tied on a wooden handle. I was rather dubious about him being able to catch minnows this way, but Steve had already observed how curious the mosquitofish is. He simply walked along the pond's edge until he saw potguts darting along. He knelt down and lowered his homemade net in about 10 inches of water and let it rest on the bottom; he held the handle and remained motionless. In a few seconds, a couple of potguts swam over to investigate the strange object. They not only weren't afraid of it, but swam in and out of the sock folds. Steve went "swoosh" and had his first specimens. He was soon back home with 30 potguts, ranging from one-half inch to nearly two inches long. He selected an even dozen for the tank and then drove back to the pond to release the others.

It took the potguts about two days to settle into their new home. They explored every inch of it and might have adapted quicker, but there was a constant parade of the four members of our family to see how our new guests were doing.

Steve knew from his reading that there is a tendency to overfeed. He had bought a high-protein, prepared fish food from a pet store and I was glad of it. I was all in favor of his having a naturally

(*Continued on next page*)

By CHARLES DICKEY

Photos By Charles Dickey

Simple approach to home aquarium, at left, properly populated for cleaning and self-care, is begun with collection of aquatic plants, right. Potguts are added to water, plants and sand, in limited numbers. Steve found his materials near home. Mom, above, joins fun of catching potguts with dipnet.

Photo By Steve Theg

The potgut, or mosquitofish, is common throughout Florida, even in roadside ditches. It's a livebearer, so young born of chubby females must be removed to prevent overcrowding.

(*Continued from preceding page*)

balanced aquarium, but I was not anxious for him to start raising mealworms and other fish goodies. I wanted to see first if the potguts would make it and whether or not Steve had really worked out a balance.

In a day, the potguts had calmed down enough to start eating. Steve fed them twice a day about what they would clean up in 10 minutes. The tank was on a table in front of a window by his bed. The potguts, it seemed to us, soon began to recognize Steve as a non-enemy, but they spooked when others in the family came too close.

While the potgut minnow does not have the brilliant colors of the exotic tropical fish, it does have its own translucent beauty. Steve thought it a mild, playful species until the day he dropped an earthworm in the tank. The cute little potguts immediately attacked it like savage piranhas, quickly cutting it to pieces. This was just one of many lessons Steve was to learn about nature's laws and survival.

Charles Makin, a friend from Sopchoppy, Florida, happened to stop by the house. I hadn't known before that he was an expert in fish culture. He took a look at Steve's tank and said, "You have two males and ten females. That big female is going to give live birth within the next few hours."

Steve had suspected that he was about to become a foster father, but had not realized how imminently. He was certainly not prepared. A large female may drop 10 to 300 young at one birth. Makin said the female needed to be put into a separate tank by herself with plenty of plant cover for the young to hide in.

Steve wanted to know why. Makin said, "In a confined area, the potgut is cannibalistic. You'd be lucky if even one or two survived."

Steve looked at me and knew what I was thinking. The deal had been for one tank. I could see us buying tank after tank to take care of vast generations of potguts and Steve relaying down to the lake to release them.

"No dice," I said. "The potguts have to determine their own survival. Overcrowding is a constant factor on the planet and you'll get to see what happens in miniature."

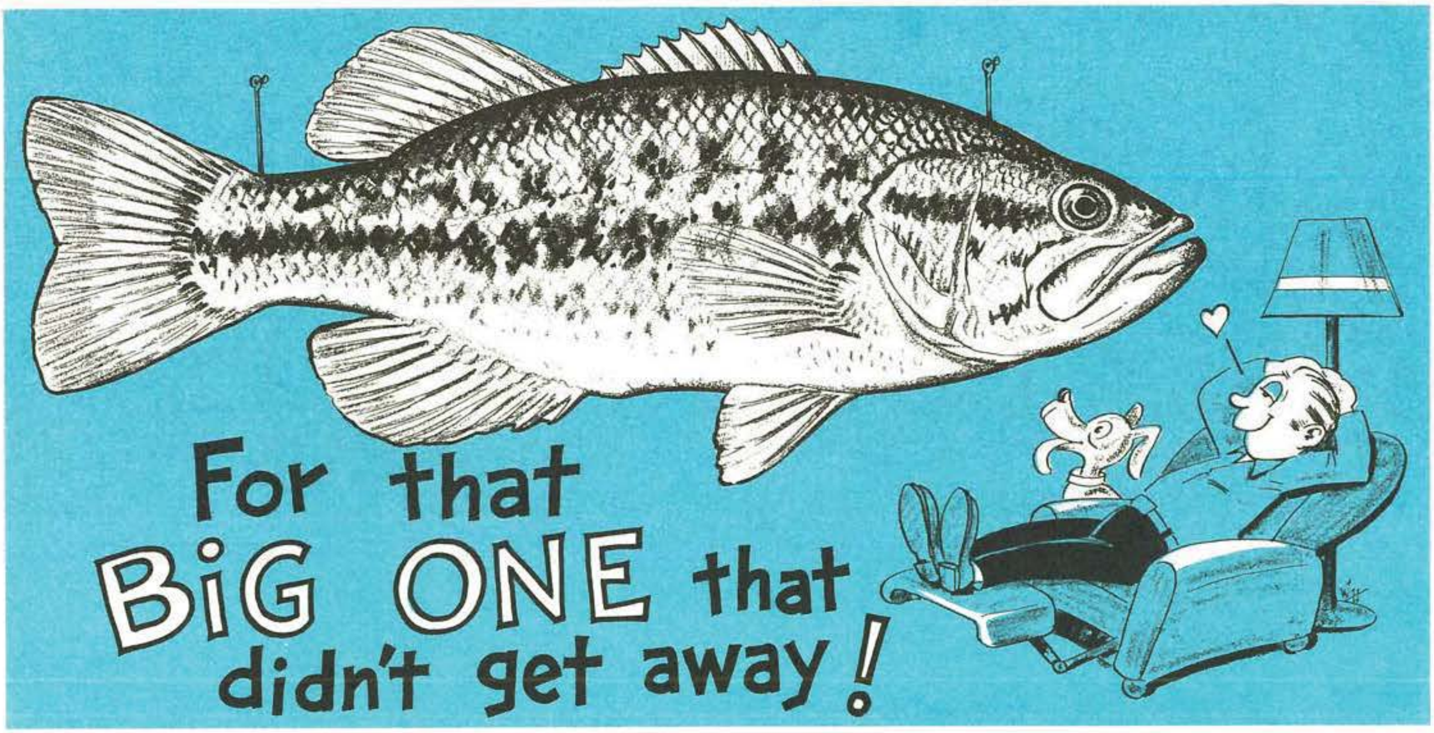
Steve was shook by the idea of the delicate little minnows feeding on their own young. It was another unexpected lesson. Man cannot expect fish or wildlife to live by some code of conduct he has developed for himself. Fish have their own evolutionary history and behavioral patterns. A fish does what is natural to him under the conditions of the moment.

Makin told Steve the tank was getting too much sunlight and an algae problem was developing. He suggested adding a dozen or so common pond snails to work on the algae and also to scavenge organic matter from the bottom. Steve moved the tank to a darker part of his room and went back to the pond to gather snails. At Makin's suggestion, he removed two potguts which were developing fin rot on their tails.

Something is always trying to throw Steve's tank out of balance. The temperature changes and the oxygen content is affected. The plants keep growing and try to take over. The potguts drop more young than there's room for. If there's too much darkness, the plants use oxygen and give off carbon dioxide. However, Steve is meeting the original goal of having an aquarium that maintains itself without any water change, with the one exception of adding prepared food.

Perhaps the biggest lesson we've learned from Steve's project is that the term "balance of nature" is often misunderstood and is applicable only in a broad sense. Both in the confines of the tank and on our planet, things are always in a state of flux. There is no 50-50 balance; something is always in the ascendancy and something is always descending. Nothing is static. There is always change and a fight for survival.

Steve has "juggling room" with his water temperature, sunlight and other factors in his tank, but if too many things get out of kilter the fish die—or it really only takes one major thing and it's all over. Maybe it's the same with our planet. We can tamper a little, but if we go too far, that's the whole ball game. ●



ELIGIBILITY REQUIREMENTS
SPECIES

LARGEMOUTH BASS	8 pounds or larger
CHAIN PICKEREL	4 pounds or larger
BLUEGILL (BREAM)	1½ pounds or larger
SHELLCRACKER	2 pounds or larger
BLACK CRAPPIE	2 pounds or larger
RED BREAST	1 pound or larger

All fish must be taken from the fresh waters of the state of Florida, as defined by the Game and Fresh Water Fish Commission. Fish must be caught on conventional fishing tackle, with artificial or live bait, in the presence of at least one witness.

The catch must be weighed and recorded at a fishing camp or tackle store within the state by the owner, manager, or an authorized agent of the respective establishment.

FLORIDA WILDLIFE'S
FISHING CITATION

is available without charge, to any and all subscribers to Florida Wildlife Magazine, and their immediate families, who catch any of the fresh-water game fish of the prescribed species and size requirements. Citation, showing recorded date of the catch, will be mailed to the applicant upon receipt of the following application form that has been properly filled out and signed.

Only fishing citation applications received within 90 days from date of catch will be honored.

APPLICATION FOR FLORIDA WILDLIFE FISHING CITATION

The Editor, FLORIDA WILDLIFE Date__________
Game & Fresh Water Fish Commission, Tallahassee, Fla.

Please send me the Florida Wildlife Fishing Citation with the inscribed data listed below:

Name (please print)__________

Address __________

City__________ State__________ Zip No.__________

Species__________ Weight__________ Length__________

Type of Tackle__________

Bait or Lure Used__________

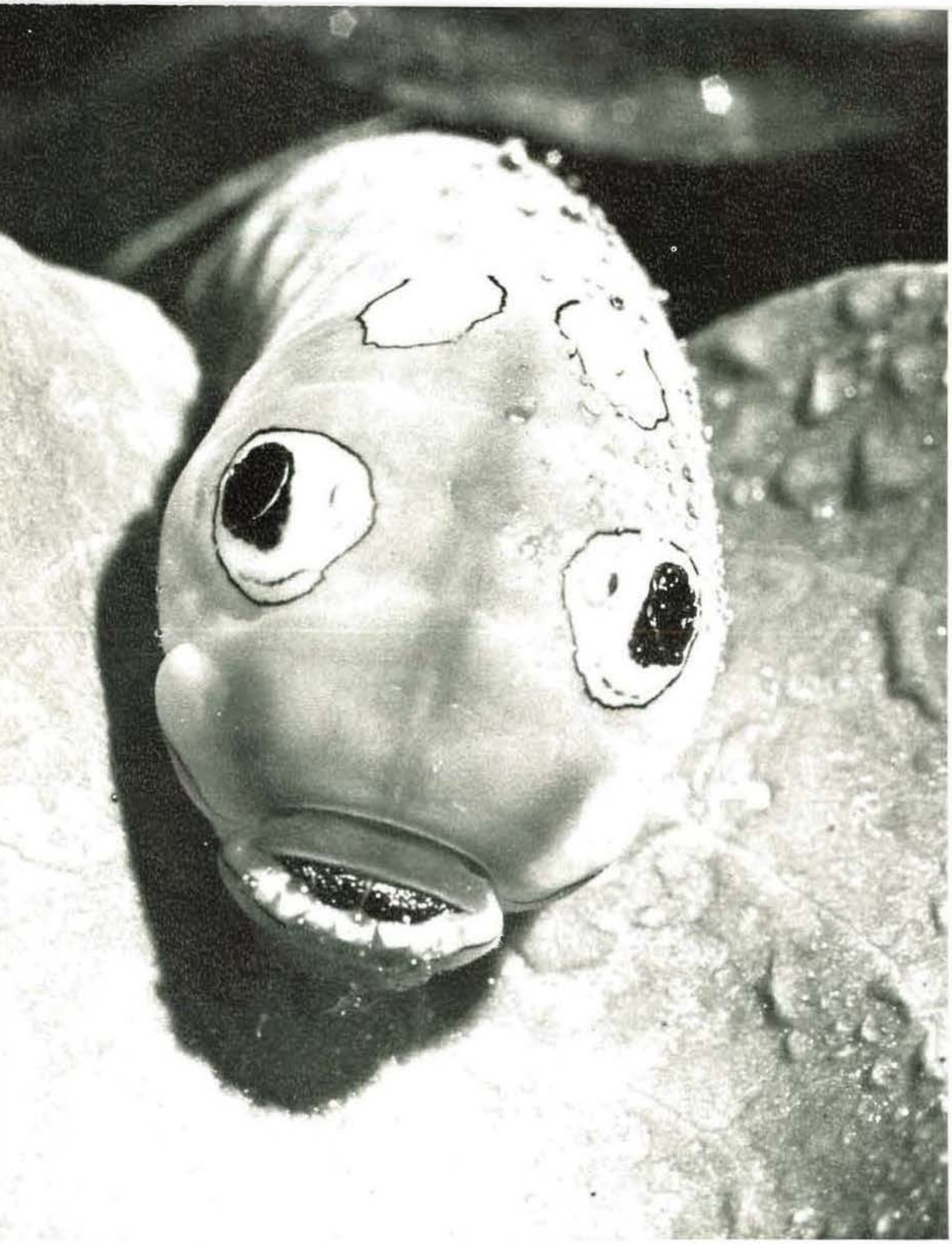
Where Caught__________ in__________ County

Date Caught__________ Catch Witnessed By__________

Registered, Weighed By__________ At__________

Signature of Applicant__________

CUT OUT AND SAVE THIS APPLICATION BLANK



Spicebush Swallowtail Butterfly Caterpillar

Photo By Carson Baldwin, Jr.

3-3-73 C
MARINE RESEARCH LAB.LIB
FLA.DEPT.NATURAL RES.
100 8TH AVE SE
ST.PETERSBURG.FLA.3370

FLORIDA WILDLIFE Magazine
Game & Fresh Water Fish Commission
Tallahassee, Florida 32304

LIBRARY
MARINE RESEARCH LABORATORY
FLORIDA DEPT. NATURAL RESOURCES

please print or type

Name ______________________

Street No. ______________________

City ______________________

State ______________ Zip Code ________

SUBSCRIBE NOW

The Florida Magazine For ALL Sportsmen

Florida WILDLIFE

12 Issues **$3.00**
24 Issues **$5.50**
36 Issues **$7.50**